

APRIL 4, 1946

THE

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IRON AGE

*Increased
Roll Neck
Strength*

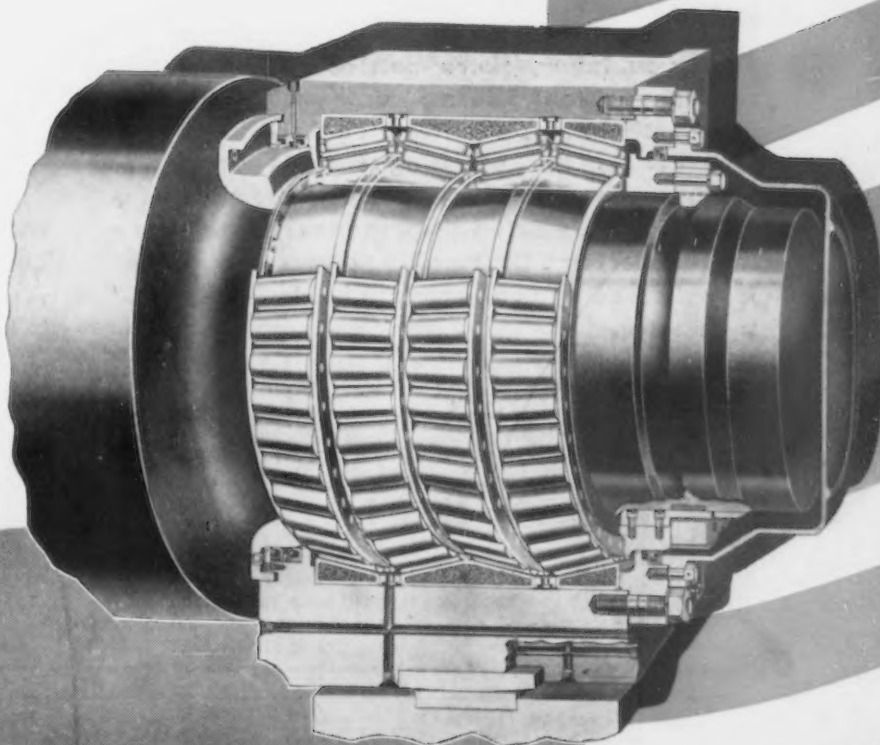
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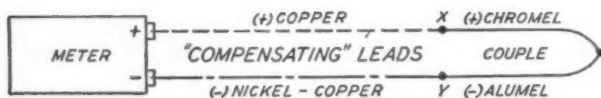
COMPENSATING LEADS ON ACCURATE PYROMETERS MAY FOOL YOU



HERE'S WHY...



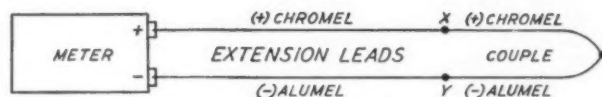
When wires of different composition are placed in contact and heated, an E.M.F. is developed, the value of which depends upon the temperature reached. Thus, by using so-called "compensating" leads with your Chromel-Alumel Thermocouples, you create two sources of erratic E.M.F.'s outside the furnace at points X and Y in the pyrometric diagram below.



DIAGRAM—A

As you know, these outside thermo-electric junctions often become extremely hot and frequently one gets hotter than the other. When this occurs, the opposing E.M.F.'s generated become more and more unequal, the "compensating" leads fail to compensate for these inequalities, and the resulting plus or minus error is registered by your accurate but "misinformed" pyrometer.

How to eliminate this common source of cold-end error? How to take full advantage of the fine accuracy of Chromel-Alumel Couples and modern precision pyrometers? Simply use Chromel-Alumel Extension Leads with your Chromel-Alumel Thermocouples.



DIAGRAM—B

By eliminating the "break" at points X and Y, you eliminate all chance of "cold-end" errors between the hot-end of the couple and the accurate mechanism of your pyrometers.

Remember, where accurate temperature control is important to furnace operation, use Chromel-Alumel Extension Leads with Chromel-Alumel Thermocouples. Ask for folder, "They belong together."



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Inflation Fire-Fighters

INFLATION eats up values more quickly than a prairie fire and the only extinguisher for it is more goods for more people at lower cost.

I do not suppose that our tool engineers, who meet in Cleveland next week for their 14th Annual Convention and Fifth National Exposition consider themselves as economic firemen, but they are. As a matter of fact they are "front line" firemen who operate at the point of contact.

You can have the biggest and reddest fire engine ever made with the most powerful motor and pumps but unless the nozzle at the end of the hose line is properly designed and adjusted, you might as well go back to the water bucket line in attempting to put out a fire.

So, too, is it with the machine and the tool in fighting inflation through cost reduction. One is useless without the other and unless the one is capable of bringing out the best performance of the other we miss the bull's eye in production.

Tool engineering by its nature is a faster stepping profession than is machine design. One can afford to redesign a tool setup once a month, if necessary, whereas the redesign of a lathe or milling machine once a year would surely break the company that made it.

Tool engineering has been taught to step even faster by the war. During the past five years the profession has "come of age" so to speak and has earned due recognition of its capabilities. While the machine tool builders performed miracles in turning out a tremendous and vital output, a great part of it had of necessity to be of prewar design. The imagination and experience of our tool engineers, however, created setups that greatly multiplied the previous output records of such machines and by so doing made a major contribution to the winning of the war.

And now our tool engineers and the builders of America's production equipment face another challenge; that of winning the peace. Winning it by making it possible for people to obtain more goods and services from their existing incomes.

We cannot put out the fire of inflation with a formula in which A equals the wage rise, B equals the price rise and the unknown, X, equals "what shall we use for money?" It is as ridiculous to think that you can as it is to attempt to stop the spread of a prairie fire by an act of Congress. The one way to put out the inflation fire, or to keep it from spreading is to increase the stream flowing from the production hose-pipe. More and more automobiles, more and more houses, more and more refrigerators, more and more of everything. Increased productivity alone will do that. And the tool engineer is the front line man of productivity.

Yes, tool engineering has come of age in America. I would like to see our technical schools and colleges recognize this important fact and institute courses leading to professional degrees in this science. And I would like to see more and more of our progressive manufacturing managements give to this profession the recognition and return that its economic importance deserves.





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than chemical analyses,
help Inland control the
quality of steel.*



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INLAND STEEL

► A group of nonintegrated flat-rolled steel producers, including Superior Sheet Steel Co., Apollo Steel Co., Mahoning Valley Steel Co. and Reeves Steel & Mfg. Co. are negotiating for the purchase of the Lowellville plant of Sharon Steel Corp.

These competitive manufacturers would consolidate on this move for the sole purpose of obtaining a source for sheet bars.

► With the current demand for cold-rolled sheets running considerably higher than capacity, mills are rushing cold-reduced sheet capacity expansion programs. Additions to capacity will total 750,000 tons a year.

► R. J. Thomas ran for vice-president of the UAW, after having been defeated for president, against the advice of CIO officials, but on the urgings of the organization he had built around him.

Had he not run, Thomas would have been given a post by Philip Murray as associate director of the oncoming southern organizational drive or on the World Federation of Trade Unions. There was no truth in the stories that Mr. Thomas surprised Richard Leonard, national Ford director of the union, by running.

► The U. S. Tariff Commission looks forward to the designation of all important iron and steel producing centers as basing points. In a comprehensive study of the steel industry both here and abroad, the Commission sees big world markets for American steel in the immediate postwar period. Contraction of this export market will occur only if European competitors become more efficient than they were before the war.

► Placating members of the British House of Commons, Cabinet Ministers have disclosed that a special design team for the development of atomic energy has been appointed and sites are now being examined for a main production plant.

British scientists are reported to know all details of the uranium 235 Hiroshima bomb, but are uninformed as to the details of destruction of the plutonium Nagasaki bomb. Unlimited financial resources are being allocated by the British Government for atomic research and development work.

► Use of silicon carbide, a source of cheap silicon, makes possible the silicon impregnation of metals on a commercial scale. This material while inert in air reacts to release silicon in the presence of chlorine at moderately high temperatures.

► Cast phenolic patterns for duplicating possess nearly ideal qualifications as to physical characteristics, speed of fabrication and overall cost. Extreme hardness of phenolic plastic prevents the duplicating guide finger from penetrating, chipping or scratching the surface.

An additional advantage is that the smooth surface of the phenolic master offers no resistance to the movement of the duplicating guide. Through use of a nonshrink filler the plastic pattern remains dimensionally stable after casting.

► An American research czar is being sought to head control of all German scientists and projects in the American zone. A law controlling research has been drafted. Results will be made available to the United States.

► Starting this month, a four-power commission will visit all zones of occupation in Germany to inspect plant facilities. Its purpose will be to answer questions on plant removals.

► One German steel mill is reported to have cast ingots in the shape of a truncated cone in order to eliminate chipping and grinding of billets rolled from ingots. The ingots were machine turned after annealing, following which they were ready for mill operations.

► Supersonic testing of aircraft bearings to detect the presence of air bubbles between the lining and main steel body had been developed in Germany. A 10-megacycle sound beam generated by a cross-cut quartz crystal in a conventional oscillator was passed through the bearing while it was being rotated. Defects were indicated by meter drop.



... Color Determination of

In this article dealing with the color determination of tungsten, titanium and columbium in alloy steels, by the hydroquinone method, the author describes a rapid method for the quantitative determination of titanium in the presence of tungsten, columbium and vanadium. In addition to the various analysis procedures, samples of mathematical computation are also given.

By CHARLES M. JOHNSON

Chief of Chemical Laboratories, & Laboratory, Ceramic Ware Dept., Crucible Steel Co. of America, Pittsburgh

THE color reactions of hydroquinone to solutions of titanium and tungsten, as published by Bogatski,¹ have been applied in this laboratory for the past 2 years. The color method for determination of tungsten is a rapid process, and a single test can be run in 40 to 50 min.

Bogatski surveyed the color methods in use in an attempt to find a rapid photometric color method for the determination of tungsten in what he called "work tools" and high speed cutting tools. He finally selected the color reactions described by G. Heyne,² who ap-

¹ Z. Anal. Chem. 114, 1938—abstracted in C. A. 33, 79, 1939.

² Zts f. angew. chem. 44, 237 (1931).

plied the red color obtained from tungsten in solution by adding a mixture of concentrated sulfuric acid and hydroquinone, to determine small amounts of tungsten in what Bogatski called "glow lamps."

Heyne warned that the H_2SO_4 must be concentrated since water causes the brown color to fade. Fe^{+3} , Ti^{+2} and Cb give brown colors; Ta, small amounts of alkalis, P_2O_5 and Ni do not interfere. Fe^{+2} and reduced Mo can be present in considerable quantities without effect.

Bogatski investigated to determine how much water could be safely added, his conclusion was that the test can, without detriment, have about as much water added as its solution contains grams of hydroquinone. Since Fe^{+3} does interfere, stannous chloride solution is used to reduce the iron to the Fe^{+2} and to reduce the molybdate. Phosphoric acid is required to prevent the separation of tin sulfate.

The elements have been found to exhibit various degrees of sensitivity, with Ti being more than twice as sensitive as W and six times as sensitive as Cb. This, together with the fact that V exhibits no color reaction, means that in steels containing W and Cb and to more than 1 pct V, determinations can be made for as low as 0.02 pct Ti, or less.

The color method, when properly conducted, is as accurate as the gravimetric procedures. In all usual ranges from about 0.05 to more than 20 pct W, it is rapid, and eliminates the need for cinchonine and platinum. The color reaction is extremely sensitive, since as low as 0.05 pct W can be quickly detected; it is probably the most rapid qualitative means for detecting small amounts of W, Ti and Cb. The color obtained is relatively permanent, and retains its intensity for a considerable period when stored in stoppered containers.

Ta also exhibits no color reaction with hydroquinone, making possible the determination of Cb in the presence of Ta. None of the usual elements (except Cb and Ti) such as iron, chromium, molybdenum, nickel, cobalt or V seem to interfere with the quantitative determination of W, except by their respective natural solution colors. Bogatski made no mention of the fact that both Ti and Cb can be determined quantitatively by hydroquinone (in the presence of V), nor did he mention the greater sensitivity of Ti.

The working method used by Bogatski in the photometric determination of W in steel is as follows:

A 0.5-g sample of the steel is dissolved with 25 cc sulfuric-phosphoric mixture in a 100-cc volumetric flask, by warming. The solution is then oxidized, dropwise, with conc HNO₃ until a color change shows an excess. After taking to slight fumes of SO₃ the solution is cooled, 50 cc of H₂O added, and the liquid cooled. An addition of 5 cc stannous chloride solution is made and the flask filled to the mark with H₂O. Swirl thoroughly and transfer, with a pipette, 2 cc of

down to the nearest high and low percentage intervals. For percentages of W greater than 1 pct, the photoelectric colorimeter is almost indispensable.

Test specimens are prepared in accordance with the following basis:

Estimated W. Pct	Weight of Sample, Mg
0.05 to 0.60	700
0.60 to 1.50	600
1.50 to 3.50	300
3.50 to 7.00	100
14.00 to 20.00	80

The lower ranges have standards within ± 0.25 pct of the estimated amount, while the higher ranges have standards within ± 0.50 pct.

The procedure to be followed in performing the analysis is as follows: Weigh the recommended amount of drillings into a 250-ml flat bottom cone flask with lip. Dissolve by warming the sample in

Tungsten, Titanium and Columbium ...

the solution into a small vessel, preferably a 100-cc Erlenmeyer flask. Add 20 cc hydroquinone, plus conc H₂SO₄ solution, and mix by swirling. Cool, hold for 3 min to allow the color to develop and measure in a photometric apparatus against water.

The solutions used by Bogatski are:

Phosphoric acid	400 cc (1.7 sp gr)
Sulfuric acid	120 cc conc (1.84 sp gr)
	x cc H ₂ O
Total	1000

Stannous chloride	200 g SnCl ₂ ·2H ₂ O
Hydrochloric acid	100 cc (1.19 sp gr)
	x cc H ₂ O
Total	500

Hydroquinone	100 g (Mercks purest)
Sulfuric acid	800 cc (1.84 sp gr) stir until dissolved
	x cc and fill to mark with H ₂ SO ₄ conc.
Total	1000

When analyzing for W, it is desirable that the photoelectric colorimeter be equipped with a logarithmic scale of from one to 1000 divisions. A No. 54 light filter (green) is adapted to this work. For low percentages of W, i.e. less than 1 pct, the analysis can be conducted without the use of a photoelectric colorimeter, by making a series of standards covering close intervals in the percentage range of the test and set up in 150-ml beakers. The test can then be narrowed

30 ml of the acid mixture* and 10 ml conc. HCl and 5 ml HNO₃. Take to fumes of SO₃ and fume for 5

*Acid Mixture:

400 ml Phosphoric Acid (H₃PO₄) 85 pct
120 ml Sulfuric Acid (H₂SO₄) 1.84 sp. gr
Mix thoroughly and dilute to a liter with distilled water and mix again.

min on a hot plate (watch time carefully, since fuming too long may cause gel formation). Remove solution from hot plate, cool, and then add slowly 35 ml H₂O. Cool again, transfer to a 100-ml graduated cylinder and dilute to 85 ml with H₂O. Add 15 ml stannous solution and mix well; the volume must be exactly

Stannous Chloride Solution:

125 g Stannous Chloride (SnCl₂)
100 ml Hydrochloric Acid (HCl) 1.19 sp gr
Dissolve by heating gently, cool and dilute to 1000 ml with distilled water. Add a piece or two of metallic tin and keep stoppered.

at 100 ml. When solution is at room temperature, pipette 4 ml into a dry 125-ml flat-bottom cone flask with lip, straight sides, and cover and containing exactly 40 ml hydroquinone solution. Rinse the 4-ml pipette** three times with part of the 100-ml solution

Hydroquinone Solution (5 pct):

5 g Hydroquinone (p-dihydroxybenzene)
100 ml Sulfuric Acid (H₂SO₄) 1.84 sp gr
Stir well until solution is complete. This solution is unstable and must be freshly prepared each time it is used. Practice is to prepare enough hydroquinone for an 8-hr turn.

before pipetting the 4 ml; the remaining solution can be stoppered and held for pipetting additional aliquots. Mix the solution by gently swirling the flask, being careful to avoid bubbles. Cool the solution by placing flask in the trough. When solution is at 70° to

**** A microburette, Schellbach, 10 ml with 0.05 ml divisions, with stop cock and funnel top for filling, is excellent for measuring 4-ml quantities.**

76°F, hold for at least 3 min to allow the brown color to fully develop and transfer it to the absorption cell of the photoelectric colorimeter. Be careful to avoid dilution of this brown liquid, even with a drop of water. The zero point on the colorimeter is set by using distilled water or a synthetic mixture without W made of ingot iron plus low carbon ferrochromium and ferrovanadium, weighing equivalent amounts of alloy content. When the brown solution is at room temperature, take readings as in the molybdenum determination. The calculations are the same as for molybdenum. Hydroquinone is not used to balance the colorimeter, but distilled water can be used.

Sample calculations to be followed for this analysis are as follows:

0.60 pct W std	81 photoelectric reading (divisions)
0.48 pct W std	65 photoelectric reading (divisions)
0.12 pct W difference	16 difference in divisions
<hr/>	
0.12	
16	
<hr/>	
$= 0.0075 \text{ pct W (per division, on 1-g basis)}$	
0.06 pct W std	81 photoelectric reading (divisions)
Unknown specimen	75 photoelectric reading (divisions)
	6 difference in divisions

$$\text{Factor} = 0.0075 \times 6 = 0.0450$$

0.600 pct std.
0.045 factor

0.555 pct W in unknown

This result compares with 0.55 pct found by gravimetric analysis.

Sample calculations to be followed in testing high-speed steel:

NBS std. 50a—18.25 pct W	290 photoelectric reading (divisions)
British std.—16.21 pct W	257 photoelectric reading (divisions)
2.04 pct. diff.	33 difference in divisions
2.04	
33	
<hr/>	
$= 0.062 \text{ pct W (per division, on 1-g basis)}$	
British std.—16.21 pct W	257 photoelectric reading
Unknown specimen	252 photoelectric reading
	5 difference

$$\text{Factor} = 0.062 \times 5 = 0.310$$

16.21 pct W std
0.31 factor

15.90 pct W in unknown

Some comparisons between color method and gravimetric analysis:

Color	Gravimetric
15.07	14.86
19.16	19.02
19.27	19.02

A storage battery and recharger can be inserted in the circuit in order to reduce variations in line voltage; however, it has been found best to use a constant

voltage transformer. It is necessary to check for fluctuations after each determination. The pct W for each division of the colorimeter scale should be determined at the start of the day's run. This W value should then be checked after each determination (of unknowns) by including another similar standard steel of about the same range of W and chromium. If the standard yields its true value, the determination of the unknown can be regarded as correct. If the control standard shows too high a value, for example 0.25 pct in a 17 to 19 pct tungsten, the 0.25 pct should be deducted from the value found for the unknown. If the control standard falls 0.25 pct too low, then this amount should be added to the value for the unknown. As much as 0.50 pct correction has been successfully made in the 18 pct range.

Colorimeter Cell

It is recommended that a heavy-walled flat-bottom cylindrical glass cell be used for the photoelectric colorimeter. Round-bottom test-tube cells seem to break too easily, as do rectangular cells. The flat-bottom cylindrical cell is well adapted for the determination of W and molybdenum by color, and can be easily made from a standard Nessler color comparison tube. The Nessler tube can be cut to length; giving a stout cell 85 mm long x 24 mm OD x 20 mm ID with a 2 mm thick wall. This cell fits neatly into the light well of the colorimeter, as shown in fig. 1, and lines up directly in the beam of light, and stands without support.

In the color determination for tungsten in high carbon, high chrome steel, with or without molybdenum, it is essential to prevent formation of brown colored solutions due to carbon. The following procedure is therefore recommended:

Dissolve 500 mg of the sample in 30 ml of 1:3 H₂SO₄, take to slight fumes, and cool. Rinse down the sides and cover of container with about 20 ml H₂O and dissolve salts by heating. Cool, add 5 ml conc. HNO₃, 10 ml conc. HCl, 15 ml H₃PO₄, and take to fumes. Cool, add 30 ml H₂O and redissolve salts by heating. Cool, transfer to a 100-ml glass-stoppered graduated cylinder, and dilute to 85 ml with H₂O. Add 15 ml SnCl₄, mix the solution, draw off 4 ml and place it into a 125-ml beaker containing 40 ml of 5-pct solution of hydroquinone. Mix well, cool for 15 min and read on the Klett.

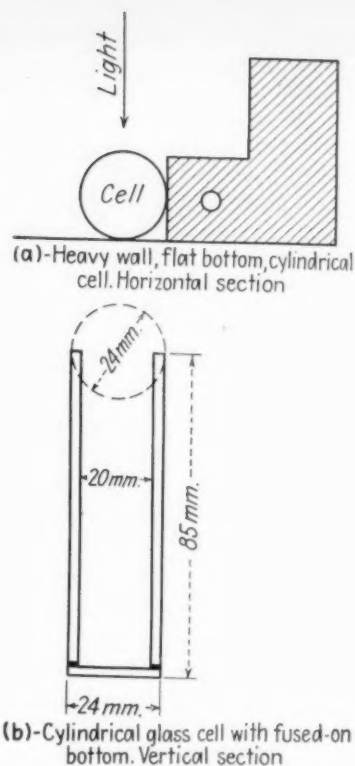


FIG. 1 (a)—Heavy wall, flat bottom cylindrical cell, horizontal section. (b)—Cylindrical glass cell with fused-on bottom, vertical section.

Sample calculations for this procedure are as follows:

Standards used: No. 1 HYCCMO std. — 500 mg
 50b — 0.010 g = 0.36 pct W
 No. 2 HYCCMO std. — 500 mg
 50b — 0.015 g = 0.54 pct W
 No. 3 HYCCMO std. — 500 mg
 50b — 0.020 g = 0.72 pct W

Pct W in Stds	Klett Reading
0.72 std. No. 3	180 divisions
0.36 std. No. 1	110 divisions
0.36 pct W difference	70 divisions difference

$\frac{0.36}{70} = 0.0051 \text{ pct W (per division)}$

Std. No. 2	0.54 pct W
Std. No. 3—180 divisions	0.72 pct W
Std. No. 2—145 divisions	0.18 pct W ($145 \times 0.0051 = 0.1785$)
35 div. diff.	0.54 pct W found
Sample Determination:	
Std. No.—180 divisions	0.72 pct W
Sample—117 divisions	0.32 pct W ($117 \times 0.0051 = 0.3213$)
63 div. diff.	0.40 pct W

The 0.40 pct W determination by color compares with 0.41 pct W found by the gravimetric method.

Columbium and Titanium Determinations

Tests conducted at this laboratory indicate that both columbium and titanium can be determined by color in a manner similar to the method just presented for W. No corrections are required for chromium by this method, since the standard steel contains approximately the same amount of chromium as the unknown (within 1 pct).

The red color due to W in solution with the conc. H_2SO_4 and hydroquinone mixture quickly disappears when more than 2 cc of water are added. The red color of Ti does not fade until about 8 cc extra of water are added, at which point there is practically no trace of color due to W or Cb left.

Based on this color reaction, Bogatski recommended the following qualitative test for Ti in the presence of W:

Place 10 cc of the test (obtained as described above) in a 25-cc graduated cylinder. Add 10 cc of sulfuric acid-hydroquinone mixture and stir with a glass rod. The presence of as low as 0.05 pct Ti will cause formation of an orange color.

It has been found, in this laboratory, that the Cb color fades similar to W. Therefore, Ti can be quan-

titatively determined in the presence of both W and Cb by sufficient water dilution.

By following the quantitative method just described using the Klett colorimeter, the following determination was made on a 18-4-1.7, W-Cr-V steel:

Pct Ti Added	Pct Ti Found
0.10	0.094
0.24	0.21
0.41	0.41

Relative Sensitivities

A satisfactory method for making determinations, utilizing hydroquinone, is one of comparative color intensity developed from oxides of W, Cb, Ti and from stainless steels containing W, Cb or Ti.

The procedure is outlined as follows:

Fuse the oxides with 8 gm of KHSO_4 and dissolve out with 75 ml or 1:2 H_2SO_4 . Cool and transfer to a 100-ml glass stoppered cylinder and dilute

Dilute Sulfuric Acid (1:2):
 333 ml Sulfuric acid (H_2SO_4) 1.84 sp gr
 667 ml distilled water

to 100 ml with 1:2 H_2SO_4 . Mix well and draw off 4 ml; add to a 150-ml beaker containing 40 ml 5 pct hydroquinone solution. At this point, Cb shows a brown color, W a brown about twice as strong as Cb, Ti a deep red brown about six to seven times as strong as Cb with Ta and V showing no color reaction. These facts are important in that much-needed methods for the determination of Ti in the presence of V, and Cb in the presence of Ta are made possible.

Some comparative intensity figures taken from the Klett Colorimeter, are as follows:

Stainless steels of about 18 pct Cr and 9 pct Ni:		
N.B.S. 123 (0.43 pct Cb)	— 30 divisions—1.0	(ratio compared with Cb)
Work Std. (0.40 pct W)	— 65 divisions—2.1	
N.B.S. 121 (0.39 pct Ti)	— 185 divisions—6.2	

Oxides calculated to metals:	
Ti oxide 6 mg—3.52 mg Ti	287 Divisions on Klett
W oxide 5 mg—3.64 mg W	92 Divisions on Klett
Cb oxide 5 mg—3.37 mg Cb	37 Divisions on Klett

Acknowledgment

Acknowledgment is due to Mr. L. L. Ferrall, Director of Metallurgy, Crucible Steel Co. of America, for securing permission to publish these articles.

Formation of Metal-Sprayed Deposits

MOTION picture studies of the metal spraying process indicate that the metal spray pulsates rapidly and that a retraction of the deposited agglomerates of particles takes place on the surface, according to W. E. Ballard in *Proceedings* of the British Physical Society, 1945, vol. 57.

The author proposes the theory that surface ten-

sion plays a considerable role both in the pulsation of the spray and in the ultimate structure of the coating. As evidence of the validity of this theory, the author points to phenomena observed when depositing metal on smooth glass and roughened metallic surfaces. The amount of metal sprayed in unit time is also seen as controlled by well-known physical laws.



TOOL engineers and production men from all over the United States and Canada will converge on Cleveland during the entire week beginning April 8, in an effort to see for themselves, and for the first time, many of the war-born developments that played so important a part in making possible the quantity production of thousands of items never before entrusted to private industry.

Coinciding with the 14th annual convention of the American Society of Tool Engineers, the fifth ASTE Exposition will be held in the Cleveland Public Auditorium, and will be the largest of its kind ever to take place. Its keynote, like that of the technical sessions, will be, "How to produce goods at lower cost while industry is paying higher wages to the men who produce the goods."

The exhibits will cover the widest range of products of interest to production men yet offered at one time in the history of U. S. industry, and it is understood that more than 400 different classes of products will be represented. Many of the items on display will be entirely new, representing wartime developments not previously shown to the industrial public. Many of

them were created with the sole purpose of increasing the speed and accuracy of production of the vast range of items that enter into the general classification of armaments. Now that industry must retool for the production of peacetime goods on an entirely different basis from the one on which it left off, many of these new machines, processes, and tools may be applied or adapted to the new job. The task of determining which of these can be used effectively, and of working out the way in which they can be employed, is one of the most important jobs now facing the tool engineer, according to C. V. Briner, president of the Society.

A study of the details of exhibits available, substantiates Briner's statement. Typical of the attention to cost-saving and time-saving production methods and tools are the considerable number of exhibits which deal with power-operated hand tools, running the gamut from screwdrivers to brushes, and the large number of exhibits featuring cemented carbides. The latter represent the largest single class of products, appearing in no less than 17 separate company exhibits, with powered hand tools (electric, pneumatic and hydraulic) featured in 15 exhibits.

ASTE Convention Theme

Production of more goods at lower cost, in spite of rising wages and material costs, will be the keynote of the technical sessions featured at this year's ASTE convention. The 5th National Exposition, run in conjunction with the convention, will feature, for the first time in industrial history virtually all of the new tools and methods now made available for civilian production.

Machine tools are not neglected. They run the full range of mechanical and hydraulic presses, lathes of all types, drill presses, tapping machines, milling machines, automatic and hand screw machines, gear hobbers, sawing machines, internal and surface grinders, hydraulic riveters and punchers, resistance welding machinery, broaching machines, precision boring machines, centering machines, honing machines, shapers, injection molding machines, etc.

Of particular interest also will be the numerous exhibits featuring quality control. Faster and higher-precision checking devices including electronically operated gaging devices and others which register by sound rather than visually, are to be found in this general classification of products and methods. Some of these devices are capable of automatically selecting parts to tenths of a thousandth. Latest developments in chip disposal equipment, materials handling equipment, air compressors, pumps of all kinds, all electric variable speed machine drives, heat treating furnaces, white blueprinting equipment capable of turning out prints at 30 feet a minute, lubricants and coolants, etc., will also be on exhibit.

As a matter of fact it is practically impossible to name any type of product or process with which a tool engineer has to concern himself, which will not be shown at the Cleveland exposition. Many of the new devices are not even properly classifiable under general headings because of their relative newness, including such developments as concrete floor reconditioning machines, honing machines utilizing a vapor blast, gear cutting tools which cut all teeth of a gear simultaneously, jet drilling equipment for accurate drilling of deep holes, crush grinding devices, new types of induction brazing and induction heating equipment.

Cost saving will be the general theme also of all technical sessions in recognition of the fact that the biggest job the tool engineer has to face today is how to make it possible to produce all kinds of goods at lower cost at the same time that manufacturers are paying higher wages to labor.

Scheduled for afternoons and evenings during show week they will cover subject matter ranging from

o o o
C. V. BRINER,
Pipe Machinery
Co., Cleveland, na-
tional president of
ASTE.



ASTE PRESIDENT

plant layout to new techniques in cutting tools, and from quality control to tool engineering for profit.

Monday afternoon's session under the chairmanship of Stephen Urban, Pratt & Whitney Division, Niles-Bement-Pond, Syracuse, N. Y., will delve into the subject of controlling quality, not only as to dimensional tolerances but also as to physical characteristics and the economics of quality control from both standpoints.

This session will be followed Monday evening by a symposium on Plant Layout and Materials Handling as it affects and is affected by tool engineering. This session will be under the direction of W. B. McClellan, Gairing Tool Co., Detroit.

What the tool engineer should know about coolants will be the general topic of Tuesday afternoon's session under the chairmanship of Fred J. Schmitt of D. A. Stuart Oil Co., Chicago. This will be followed by a symposium on New Techniques in Cutting Tools, Tuesday evening, with Robert W. Ford of Kearney & Trecker Corp., Milwaukee, as chairman. This session will deal not only with the cutters themselves but also with cutter materials and uses of new techniques.

Simultaneous sessions on Wednesday afternoon will be devoted respectively to (a) Tool Engineering Education, with ASTE Educational Committee Chairman Otto Winter presiding, and (b) Tooling for Permanent Molds and Extrusions. The latter session will be under the chairmanship of Earl V. Johnson of Firth-Sterling Steel Co., Dayton, and will deal with the subject from the standpoint of the product involved,

the tooling required and uses of the processes. The second half of the educational session will be held Wednesday evening.

A single technical session is scheduled for Thursday, since the annual banquet is to be held Thursday evening. The speaker at the banquet will be George T. Christopher, president, Packard Motor Car Co. The afternoon session will deal with Tool Engineering for Profit, a symposium on determining how to engineer production methods and equipment to produce a given number of parts at minimum cost. In other words, it will deal with the variations in tool engineering required when quantities to be produced are large

or small, or somewhere in between. Chairman of this session is H. E. Linsley, machine tool editor, THE IRON AGE.

A single session on Friday afternoon will wind up the technical program. This session, under E. W. Baumgardner, National Carbon Co., Cleveland, will study the subject of special machine design as affected by use of different types of machine controls. Thus, the influence on such designs of hydraulic, electronic and mechanical controls will be discussed.

Afternoon sessions are all scheduled to start at 2 p.m. with evening sessions starting at 8 p.m., and will all be held in the ballroom of the auditorium.

Technical Program of 14th Annual ASTE Convention

Monday, April 8

2:00 P. M.

Subject: Plant Layout and Material Handling

Chairman: W. B. McClellan, sales manager, Gairing Tool Co., Detroit.

Speakers: *Plant Layout Theory* by Haylett B. Shaw, Methods Engineering Council, Kansas City.

Production Methods by Otto Ewart, plant manager, Ordnance Division, W. F. & John Barnes Co., Rockford, Ill.

8:00 P. M.

Subject: Economic Control of Quality

Chairman: Stephen Urban, sales manager, Pratt & Whitney Division, Niles-Bement-Pond, Syracuse, N. Y.

Speakers: *Fundamentals of Inspection Procedure* by Alfred L. Davis, Rochester Institute of Technology, Rochester, N. Y.

A New Approach—Statistical Quality Control by Joseph G. Manuele, director of quality control, Westinghouse Electric Corp., East Pittsburgh.

Dimensional Control by Paul V. Miller, manager, Small Tool and Gage Division, Taft-Peirce Mfg. Co., Woonsocket, R. I.

Tuesday, April 9

2:00 P. M.

Subject: Cutting Fluids

Chairman: F. J. Schmitt, sales manager, D. A. Stuart Oil Co., Chicago.

Speakers: *Testing of Cutting Fluids* by D. J. Wangelin, Research and Development Laboratories, Pure Oil Co., 35 E. Wacker Dr., Chicago.

What the Tool Engineer Should Know About Cutting Fluids by W. H. Oldacre, president and general manager, D. A. Stuart Oil Co., Chicago.

Prepared Discussions by Joseph Geschelin, chairman, Independent Research Committee on Cutting Fluids.

Fred W. Lucht, Development Engineer, Carboly Co., Inc., Detroit.

A. H. d'Arcambal, vice-president and consulting metallurgist, Small Tool and Gage Department, Pratt & Whitney Div., Niles-Bement-Pond Co., West Hartford, Conn.

8:00 P. M.

Subject: New Techniques in Cutting Tools

Chairman: Robert W. Ford, sales engineer, Ex-Cell-O Corp., Detroit.

Speakers: *Manufacturing Methods of Precision Cutting Tools and Gage Manufacturers in Germany During World War II and Comments on The General Condition of Germany Immediately After VE-Day* by A. H. d'Arcambal, vice-president and consulting metallurgist, Pratt & Whitney Div., Niles-Bement-Pond Co., West Hartford, Conn.

Exploring Carbide Possibilities in Single Point Turning by J. F. Allen, project engineer, Warner & Swasey Co., Cleveland.

Wednesday, April 10

2:00 P. M.

Subject: Tooling For Permanent Molds

Chairman: Earl V. Johnson, president, Dayton Carbide Tool Co., Dayton.

Speakers: *Applied to Rubber and Plastics* by Herman O. Poock, assistant master mechanic, Inland Mfg. Division, General Motors Corp., Dayton.

Applied to Glass and Other Materials by K. T. Kuck, chief engineer, Monarch Machine Tool Co., Sidney, Ohio.

8:00 P. M.

Subject: Tool Engineering Education and Professional Development

Chairman: Otto W. Winter, vice-president, Acme Pattern & Machine Co., Inc., 1559 Niagara St., Buffalo, and chairman, National Education Committee, ASTE.

Speakers: *Higher Learning in Engineering* by C. E. McQuigg, College of Engineering, Ohio State University, Columbus.

Tool Engineering Research by O. W. Boston, Department of Metal Processing College of Engineering, University of Michigan, Ann Arbor, Mich.

Thursday, April 11

2:00 P. M.

Subject: Tool Engineering and Profits

Chairman: H. E. Linsley, Machine Tool Editor, THE IRON AGE.

Speakers: *Ralph E. Flanders, president, Bryant Chucking Grinder Co., and president, Jones & Lamson Machine Co., Springfield, Vt.*

Profit Producers for Industry by A. G. Bryant, vice-president Cleereman Machine Tool Co., Chicago.

Relationship of Tool Engineering to the Field of Economics by Clifford E. Ives, Ives Engineering & Planning Co., Chicago.

Friday, April 12

2:00 P. M.

Subject: Controls and Drives for Special Machine Design

Chairman: E. W. Baumgardner, National Carbon Co., Cleveland.

Speakers: *Hydraulic Controls and Drives* by L. R. Twyman, manager, Industrial Division Vickers, Inc., Detroit.

Mechanical Variable Speed Drives and Controls by Lev A. Trofimov, consulting engineer on variable speed drives, Cleveland.

Electric and Electronic Drives and Controls by G. A. Caldwell, manager, control engineering, Westinghouse Electric Corp., East Pittsburgh.

Drives and Controls on Standard Machines and Special Adaptations to Standard Machines From the Machine Tool Builder's Angle by B. P. Graves, director of design, Brown & Sharpe Mfg. Co., Providence.

Silicon-Impregnated Steels

Although the impregnation of steels with silicon is not an entirely new process, it is only very recently that this technique could be applied on a scale large enough to merit commercial consideration. Herein, the author, who has several patents on this process, describes the equipment, technique and materials to be used for optimum results.

HIGH-SILICON iron alloys, while very resistant to corrosion, heat and wear, have been limited in use in that they can be made only in the cast form. They cannot be machined and are very brittle. If the silicon alloy were only in the outer layers of the article and were supported by a soft ductile core, the desirable properties of the silicon alloy would be obtained with the elimination of most of the undesirable ones.

The impregnation of metals with silicon has been reported in literature a number of times.* The

* See also "Chromium, Silicon and Aluminum Impregnation of Steel," THE IRON AGE, Oct. 18, 1945, p. 58; and "Late Returns from Laboratory and Mill," THE IRON AGE, May 21, 1936, p. 41.

methods used, however, were not commercial. Articles were usually packed in ferrosilicon and heated to high temperatures in rigorously reducing atmospheres for long periods of time. The cases formed were usually very thin. Sometimes volatile chlorides were used. These tend to vaporize out of the retort or to attack it before reaching the proper treating temperature. Silicon tetrachloride has been used, but it is a very volatile, hygroscopic liquid that is difficult to handle. It contains only 20 pct silicon and hence is largely composed of chlorine.

A commercial silicon impregnation process* requires a source of cheap silicon. One of the cheapest

* Commercially known as Ithrigizing. H. K. Ithrig, U. S. Patents 2,109,485, Re20,719, 2,142,941, 2,157,902, 2,163,753.

of these is silicon carbide. Pure SiC contains 70 pct silicon. Amorphous silicon carbide, a byproduct of the manufacture of crystalline silicon carbide abrasives, is a cheap source of silicon carbide. It is known as fire sand or refractory grain and contains over 80 pct of the desired compound. Silicon carbide is a very inert material in air even at very high temperatures. However, in the presence of chlorine at moderately high temperatures, silicon is released for the impregnation of metals. This reaction is the basis for the commercial process described below.

The most widely used furnace for silicon impregnation is the rotating retort type similar to those used for carburizing. Provision is made for the introduction of chlorine by means of a stuffing box in each head. A photograph of such a furnace is shown in fig. 1 and in fig. 2 it is shown with one head re-

moved for unloading. This furnace is heated electrically but it may be heated with any fuel which will give reasonably accurate temperature regulation.

The oxidation resistant, high-alloy type retorts do not give as good results as do carbon steel retorts. An ordinary 10-in. extra heavy seamless low-carbon steel pipe is used in fig. 1. It is 10 ft in overall length and has a heated zone about 5 ft in length. The retorts have a life of 50 to 60 runs and fail from oxidation on the outside. No retort has failed from attack on the inside. The reaction of the chlorine on the silicon carbide probably protects the iron of the retort. The life of these retorts could be lengthened by heating them in a reducing atmosphere or by coating them with some heat resistant material. A 0.5 hp motor drives the retort through a speed reducer and a chain and sprocket on one end of the retort. It revolves at the rate of about 1 rev. in 2 to 3 min. It is supported and revolves on two rollers on each end. No center bearing is used.

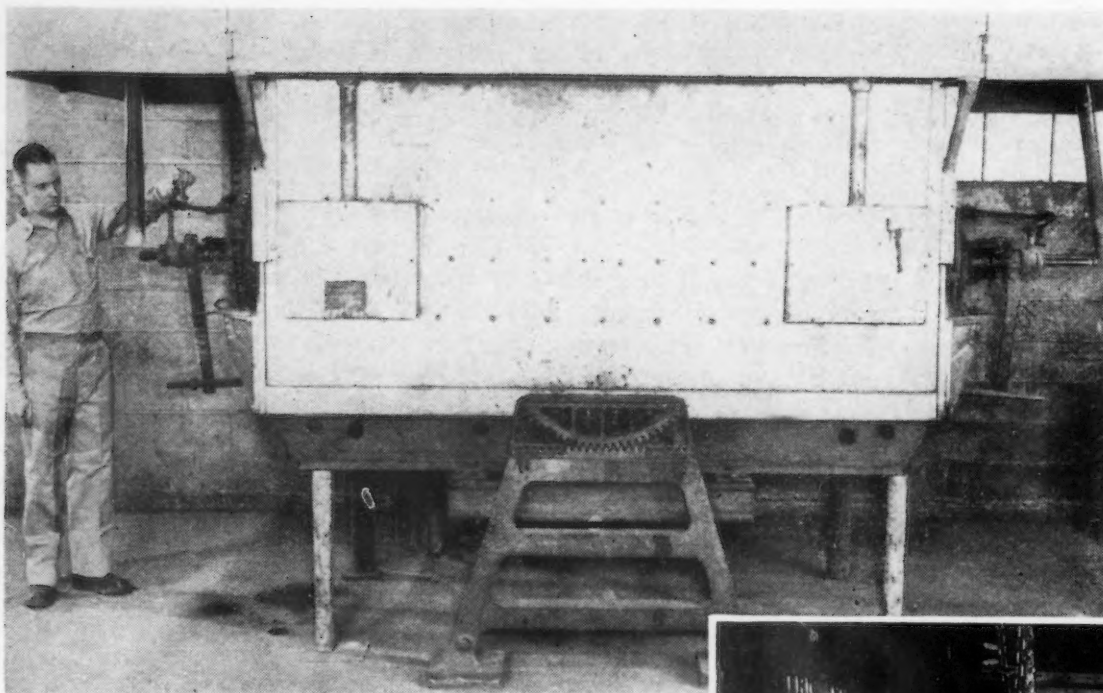
Insulating heads are made of molded ceramic material. A carbon tube is molded lengthwise through the head to conduct the chlorine into the retort. Steel plate baffles confine the parts to be treated to the center heated zone.

Chlorine is introduced through a tee in the center of each head as shown in figs. 1 and 2. The tee is also used as a cleanout for ferric chloride which tends to condense in the outlet tube opposite the chlorine inlet. By means of valves, the stream of chlorine may be passed into either end of the retort.

Fig. 3 shows a new and more efficient type of furnace with two bases and retorts, which has just been completed. The heating cover is removed from one retort upon completion of the required time at temperature and transferred to a previously loaded retort on a second base. The first retort then can be unloaded and reloaded while the second is being heated. It is not necessary to cool the furnace to unload a retort. The retorts are not subjected to high

By HARRY K. IHRIG

Director of Laboratories, Globe Steel Tubes Co.



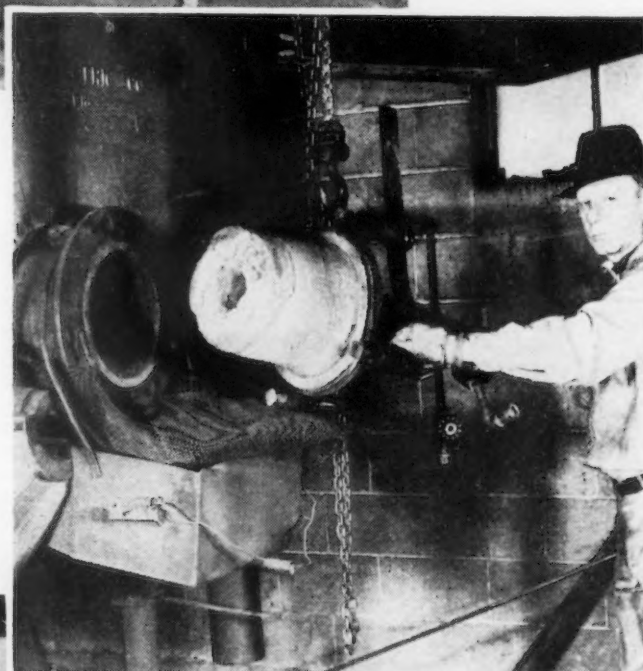
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FIG. 1—The most popular furnace for silicon impregnation is the rotating-retort type shown here. By means of a stuffing box in each head, chlorine is introduced into the furnace.

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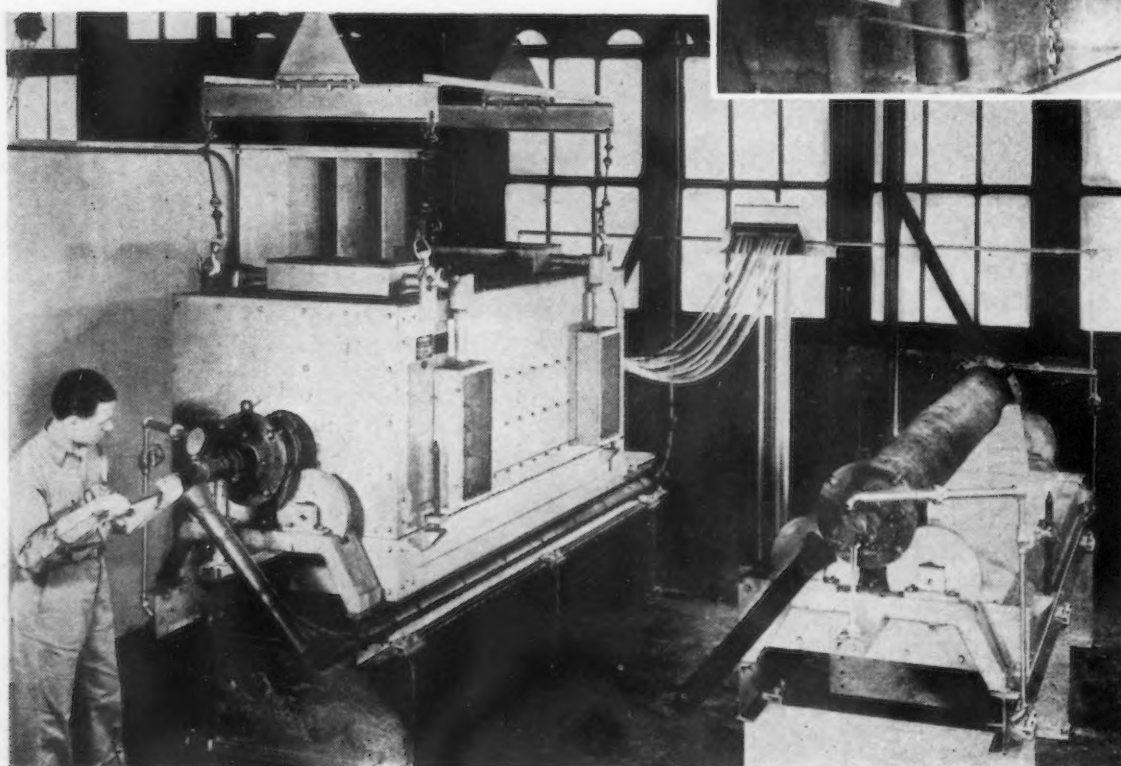
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FIG. 2—One head of this rotating-retort type furnace has been removed for unloading.



temperatures for such long periods and therefore will not scale so much.

The metal parts to be treated are charged through the end of the retort which has been opened to unload the previous run. These may be loaded in any way so that they are exposed on all surfaces to the silicon carbide when the retort revolves. Usually, about 75 pct of the volume of the retort may be filled. About 450 lb of solid parts, such as shafts, may be loaded in the furnace shown in fig. 1. About 45 lb of silicon carbide is then shoveled on the parts. This may be added in small quantities at the same time



LEFT

FIG. 3—This new type furnace for silicon impregnation has two bases and retorts. The heating cover is removed from one retort upon completion of the required time at temperature and transferred to a previously loaded retort on a second base. The first retort then can be unloaded and reloaded while the second is being heated. Photo courtesy, Crane Co.

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the parts are added to assure more even distribution. The head is then replaced and the chlorine line connected.

The furnace is heated to 1825° to 1850° F and when it is up to temperature, chlorine is started in one end at the rate of about 2 lb per hr. At the end of half the run, the stream of chlorine is switched to the other end. A small amount of fumes, largely ferric chloride, come from the outlet opposite the chlorine inlet. Every 15 to 30 min a rod is pushed into the outlet to free it of condensed ferric chloride. No inert or reducing gas is used during the run.

A case of about 0.015 in. is produced in 30 min at treating temperature. A 0.020-in. case is formed in about 1 hr, and a 0.035-in. case in 2 hr. The latter is the normal commercial thickness. A 0.050-in. case may be produced in about 3 hr.

After the necessary time at the treating temperature required for the desired thickness of case, the heat is turned off or removed by changing the furnace cover over to the second retort of the equipment shown in fig. 3. When the retort cools down to about 500° to 600° F, the head from one end is removed and the silicon impregnated parts may then be removed as soon as they are cool enough to handle. They are not quenched nor otherwise heat treated since the silicon alloy case cannot be changed by any known heat treatment. The retort is then charged for a second run.

The parts come out fairly clean and may be brushed if necessary. Particles of ferric chloride cling to the metal or may be in the graphite of the case. If exposed to moisture, this compound hydrolyzes to rust. This ferric chloride may be largely removed by steaming the parts or boiling them in water.

It is obvious that the cost of treating different parts varies with the size and shape of such articles. Thin, hollow parts such as light walled tubing that require large volumes per unit weight, will cost more per pound than solid shafts.

The following is taken from the log of a typical run of heavy parts:

Date	1-24-46
Run number	3252
Furnace temperature when charged	430° F
Weight charged	457 lb
Type of charge	250 water pump shafts 7/8 x 11 in.
Kwh required to bring furnace to temperature	252
Kwh at temperature	40
Time required to reach temperature	5 hr 35 min
Time at temperature	2 1/2 hr
Weight of chlorine used	6.5 lb
Weight of silicon carbide used	45 lb
Total manhours for run	8.5
Total kwh current used	292

With silicon carbide at \$0.047 per lb, chlorine at \$0.075 per lb, current at \$0.010 per kwh, and operating labor at \$1.04 per hr, the direct operating costs for materials, fuel and labor for this run are \$14.37 or 3.1¢ per lb of metal treated.

Costs over a period of 6 months for the treatment

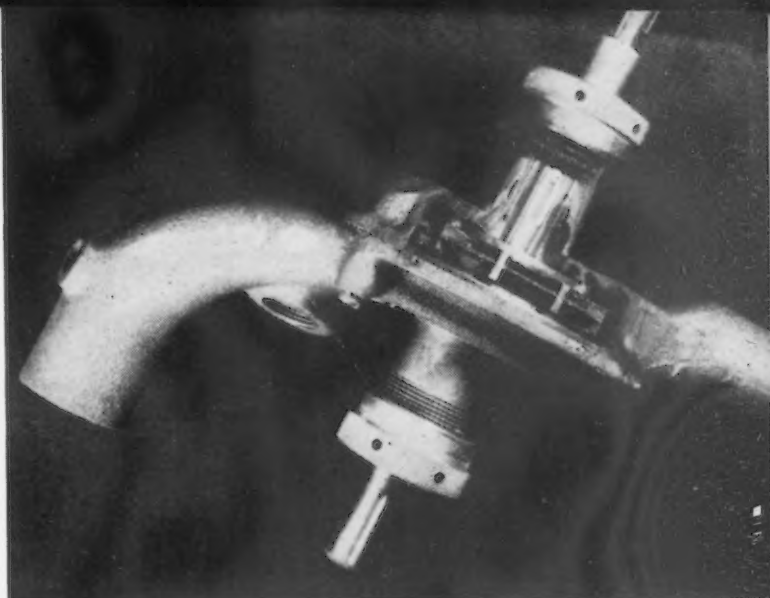


FIG. 4—Cutaway water pump showing silicon-impregnated shaft with section of case ground off and etched. About 200,000 such shafts have been so treated and some have been in service for 10 yr. Photo courtesy, Hein-Werner Motor Parts Corp.

of 51,281 lb of miscellaneous light and heavy articles in 134 runs were as follows:

	Cost per Lb.		Cost per Run
Materials			
Silicon carbide, chlorine	\$0.01070		\$4.0958
Electric power	0.01258		4.8068
Retorts and baffles	0.00580		2.2205
Labor	0.02823		10.8062
Miscellaneous			
Heat, water, truck service, etc.	0.00864		3.3103
Total Direct Operating Costs ..		\$0.06593	\$25.2396
Repairs and maintenance			
Furnace, machinery, electrical equipment, steam, air, gas lines, etc.		0.00665	2.5522
Overhead			
Taxes and insurance	\$0.00236		\$0.9084
Depreciation	0.00992		3.7984
Supervision, office, etc.	0.02295		8.7834
Total Overhead		0.03523	13.4902
Grand Total		\$0.10781	\$41.2820

All of the above costs were obtained using the furnace shown in figs. 1 and 2. Lower operating and repair costs will undoubtedly be obtained using the double retort equipment shown in fig. 3.

Commercial Applications

Many commercial articles have been siliconized. A few of these are described below.

About 200,000 water pump shafts (shown in fig. 4) for large industrial internal combustion motors have been treated, and some have been in service for 10 yr. These siliconized shafts replaced shafts made of stainless and nitrided steel. They are in use all over the world and have given excellent service with all kinds of cooling water.

Silicon-impregnated exhaust manifolds used on large marine engines in salt water are illustrated in fig. 5.

Fig. 6 shows etched sections of miscellaneous valves and fittings which have been used in service under a wide variety of corrosive conditions.

Treated chains for marine and industrial use have been very successful. Fig. 7 shows the results of a test with tap water running continuously over a treated chain link and bar for 370 days. These are

compared to an untreated control. The treated parts show no attack while the untreated steel is badly corroded. Fig. 8 shows two malleable-iron conveyor chain links. These came from a chain made up of links half of which were silicon impregnated. The chain was run over sprockets until it failed from wear in one of the untreated links. The treated link shows almost no wear.

Bolts and nuts used in the oil, paper and chemical industries have been protected from corrosive attack. Several thousand nuts were used on couplings in an oil refining process and were exposed to temperatures of over 1000° F. Untreated nuts froze after short periods of this service. The silicon-impregnated nuts were removed easily after 21 months under similar conditions.

Fig. 9 shows a cap screw and a hexagon nut. They have been sectioned after treatment and one-half of the cap screw and the nut have been boiled in nitric acid until all of the core has been dissolved. Only the silicon-alloy case remains.

The silicon case is shown in the photomicrographs in fig. 10. The one on the right has been ground and polished by ordinary metallographic methods. Crystals of the high-silicon alloy case are pulled out leaving voids. The one on the left has been polished with much more care. It was taken directly to a lead lap from an abrasive cut-off wheel, then on 400 and 2-0 papers, and is finished on a silk wheel. The small particles seen in the case after careful polishing are graphite which forms from the carbon in the steel. The porous scale-like outer section is removed by grinding from parts that are to be held to close tolerances or smooth surfaces. The silicon content de-

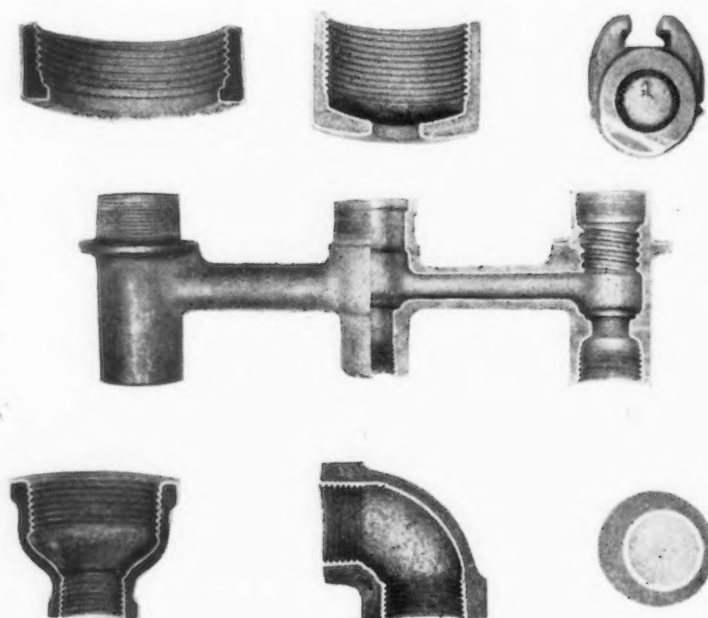
creases very little from the outside surface up to the inner 0.010 in. of the case. It dropped from 14.02 pct to 13.54 pct silicon in four 0.010-in. cuts taken from the outside of a treated bar.* Up to 0.015 in.

* H. K. Ithrig, *Metal Progress*, vol. 33, pp. 367-372, 1938. H. K. Ithrig, *ASM Handbook*, 1939 Ed., pp. 1090-1093.

may be removed from a 0.035-in. case without danger of seriously depleting the silicon content of the ground service. Therefore extreme care does not have to be exercised in grinding silicon impregnated articles. On the other hand, carburized and nitrided steels must be ground very carefully so as not to remove the highly alloyed outer portion of their cases.

Carbon concentrates under the case. It is probably pushed ahead of the silicon as it enters the metal.

FIG. 5—These silicon-impregnated exhaust manifolds are made for use on large marine engines in salt water. Photo courtesy, Waukesha Motor Co.



ABOVE
FIG. 6—Sections of valves and fittings etched to show silicon-alloy case. These have been used in service under a wide variety of corrosive conditions.

RIGHT
FIG. 7—Silicon-impregnated chain link and bar show no attack after being tested in tap water running continuously for 370 days. The untreated steel strip at the bottom after identical treatment is badly corroded.





LEFT

FIG. 8—These two malleable-iron conveyor chain links came from a chain made up of links half of which were silicon impregnated. The chain was run over sprockets until it failed from wear in one of the untreated links. The treated link, above, shows almost no wear. It was ground and etched on the right to show case.

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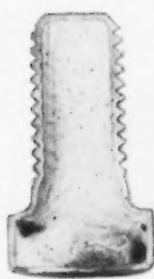
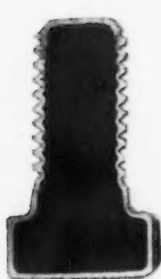


FIG. 9 — Silicon-impregnated hexagon nut and cap screw were halved. One half of each was boiled in nitric acid until all of the core dissolved, leaving only the case. Other half of the cap screw is shown here etched lightly to illustrate case and core.

o o o

RIGHT

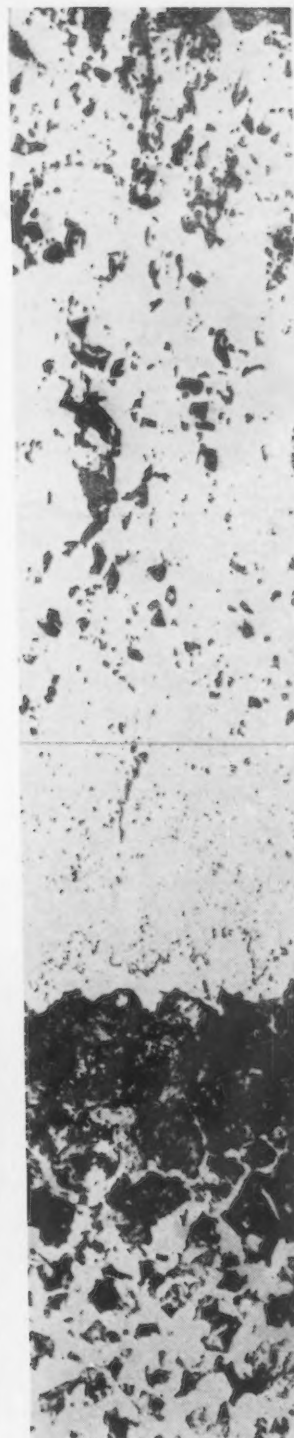
FIG. 10—Photomicrographs of silicon-alloy case at 100X. Special polishing technique was used for specimens on the left. On the right, specimen was polished by ordinary methods. Note carbon concentration underneath the case.



Parts swell from 0.001 in. to 0.005 in. during treatment, depending on the thickness of the case and section. Very little distortion occurs during treatment if strains are previously removed by annealing. Parts weigh slightly less after treatment than before. The case will not spall off under vigorous hammering but will chip on sharp corners. It has a hardness of 80 to 85 Rb but cannot be machined with ordinary tools.

Silicon-impregnated steel is resistant to scaling in air up to 1400°F. It is resistant to a wide variety of corrosive fluids but is not recommended for violent corrosive agents such as boiling acids, since the case is a relatively thin part of the section and when it is penetrated the core metal is rapidly attacked. Solid metals with exactly the same corrosion resistance as the case would still have much of their life left after a layer equal to that of the case had been removed.

The case absorbs a small amount of oil when treated parts are heated in it to about 300°F. Probably the graphite particles in the case take up this oil. Such oiled parts have a measure of self lubrication which materially aids in wear resistance.



The yield strength of steel is not lowered by silicon impregnation. The case starts to crack above the yield point and hence the tensile strength is lower over the whole section because it is being measured only on the core.

The case is particularly nongalling. It works well against itself and other metals. Because of its low hardness and the annealed condition of the core, high unit pressures such as ball bearing races tend to sink and such applications should be avoided.

Dolin and Benninger* have run air and corrosion

* T. J. Dolan and H. H. Benninger, *Proceedings ASTM*, vol. 40, pp. 658-669, 1940.

fatigue tests with silicon-impregnated steel and other

impregnated and coated steels. Their results are as follows:

Material	Ratio of Endurance Limit in Water to Endurance Limit in Air, Pct
Uncoated SAE 3140.....	22.4
Cadmium-plated SAE 3140....	25.4
Zinc-plated SAE 3140.....	41.8
Cyanided SAE 3140.....	23.8
Nitrided SAE 6120.....	80.9
Silicon-impregnated SAE 1020.	100.0

The only metal that showed the same values for air and water corrosion fatigue was the silicon-impregnated sample.

The most corrosion and wear-resistant cases are formed on low-carbon, low-sulfur steels. The carbon should be below 0.25 pct, and the sulfur below 0.04 pct. Most alloying elements adversely affect the properties of the silicon case. Therefore, ordinary 1015 or 1020 steels are preferred. Of course they are also the cheapest. Cast or wrought steels may

be used. White and malleable irons have been treated successfully. Ordinary gray cast irons tend to swell badly at treating temperatures and the cases on them are relatively soft and porous.

Sections under $\frac{1}{8}$ in. in thickness are likely to bend in the rotating retort at the treating temperature. Very thin sections tend to be treated all the way through and hence are brittle. Sharp corners should be avoided.

When parts are to be held to close tolerances, or where smooth surfaces are required, they should be rough machined or otherwise fabricated with an allowance of 0.010 in. extra stock on a side which is removed by grinding after the silicon impregnation.

Threaded parts either must be threaded after treatment by removing the case in the threaded area or should be threaded undersize to allow for a slight swell. This varies with different sized threads and sections so trial parts should be run to determine this. After it is determined, it remains constant from run to run.

A commercial process for the impregnation of metals with silicon has been described. Materials used are cheap, and the equipment is simple and easily operated. Treated articles have been in successful service for over 10 yr.

Attachment Converts Lathe Into Automatic

AUTOMATIC production of small parts of screw machine type is possible on a lathe equipped with a new type of accessory, the Dunamatic lathe attachment, recently introduced by Dunn Engineering Co., Detroit. By means of this attachment, bar stock is fed into the machine, just as into a small automatic, and after the job has been set up, forming and cutoff are accomplished without the operator.

Designed for attachment to either an Atlas or a Logan lathe, the device is reported to have reduced the cost of producing small parts to exceedingly low levels while maintaining notably close limits of accuracy. The stock is cam fed through a tube by feed fingers into a collet, the length to be formed and cutoff being determined by a moving stock stop. Closing of the collet, which is automatic like the rest of the operation, is timed to coincide with the start of operation of the tools.

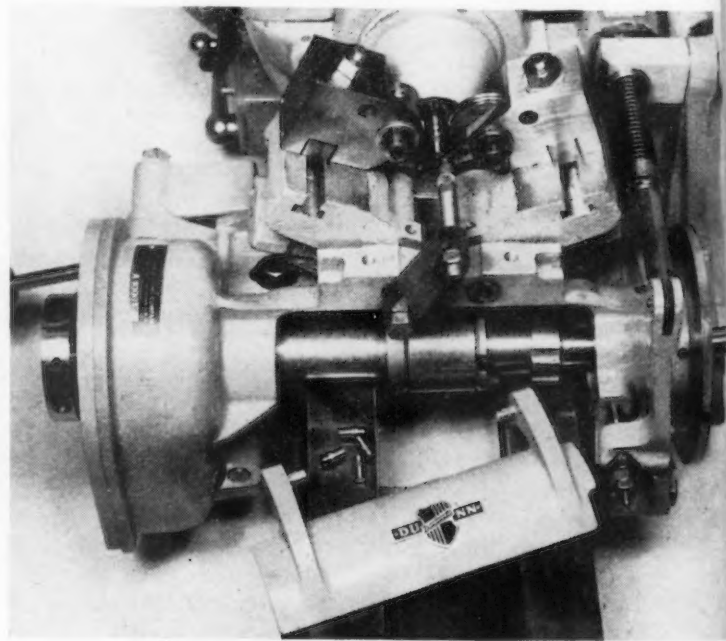
The stock feeds into position under the tools which are mounted on rocker arms. Face cams are employed in the attachment to control the operation of these arms, on which either circular or flat form tools, or a combination of both, may be mounted. The selection of tools depends, of course, on the size of the production run. The rocker arms operate on pivots instead of slides, thus reducing the necessity for constant adjustment. Where long runs are involved, however, a simple screw adjustment is provided.

The attachment is complete and is designed for coupling to the lathe without the necessity of boring holes or otherwise harming or defacing the machine. One or two hours' time is required for attaching the device, which can later be removed at will to restore the machine to normal service. Power for operation is taken from the standard lathe lead screw and transmitted through a roller chain and steel sprockets through a steel worm and bronze worm gear, provid-

ing efficient and quiet operation. Speeds can be controlled, of course, through the gearing of the lathe.

The machine was developed during the war years for the production of exceedingly small and precise gyroscope parts, for which the necessity for fast production was such as to make an automatic operation a most desirable means. It is, however, designed for long wear, being equipped with bronze bushings and sintered bearings, and having all gears precision ground.

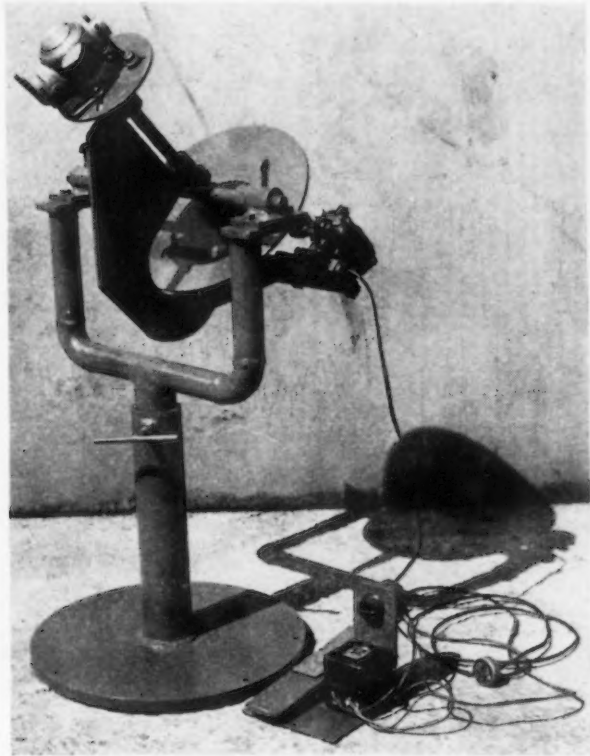
FIG. 1—The Dunamatic lathe attachment in operation, showing the location of the cutting tools and the stock stop. The cover resting on the ways has been removed to show the tool actuating cams.



Hard Facing Work Positioner

DESIGNED to simplify holding work for hard facing, the positioner illustrated herewith can be inexpensively built of scrap parts. Developed by engineers of Fansteel Metallurgical Corp., North Chicago, to show how facing operations can be simplified, particularly in plants with limited facilities, the unit can also be employed for many welding and cutting operations.

The motor is mounted on a slide behind the drive plate and can be adjusted horizontally to increase or decrease the speed of the face plate or to reverse its direction. Unit shown here uses a 1/50 hp motor, turning up 5000 rpm. The reduction at the driving plate is 250:1. This reduction, and the adjustable mounting, gives face plate speed of 1/2 to 20 rpm.

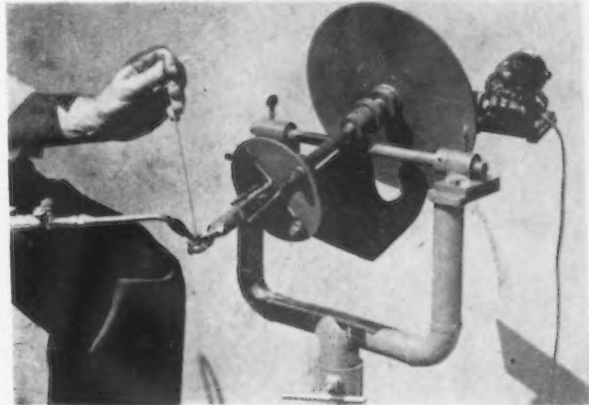
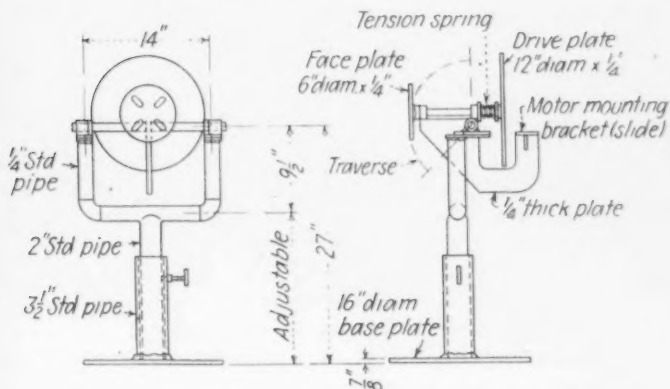


GENERAL view of positioner, showing on-off switch, rheostat and driving motor. Unit is in position for surfacing a spherical groove. The rheostat is mounted separately with the foot pedal on-off switch. As long as pressure is on the pedal the machine rotates. When the pressure is removed, the rotation stops.

o o o

BELOW

CONSTRUCTION details of the positioner. Note adjustable feature of the base and motor mounting bracket which permits adjustment of the speed of the face plate. This unit was constructed of scrap metals by Fansteel at a cost of \$1.50 for the material.



ABOVE

WORK table tilted below horizontal position for facing spiral flutes. Note adjustable feature of clamping prongs. These 90° prongs are bolted to slots in the face plate and can be adjusted radially or turned in or out to accommodate various workpiece diameters and odd shapes.

o o o

BELOW

TABLE in vertical position for facing a flat surface. Table will traverse approximately 150° and can be locked in any position. It can also be turned a full 360° on its vertical axis.



Aluminum-Bronze Permanent



FIG. 1—Typical aluminum-bronze permanent mold castings. Gear on right and transmission shifter bar, top, are cast with steel inserts.

Casting the 86 pct Cu—10 pct Al alloy in gravity filled die molds to produce castings with superior hardness, grain and surface characteristics and to closer size tolerances is described in this article. Details of mold construction and operation are given.

PRODUCTION of aluminum bronze castings in permanent molds at the plant of McGill Mfg. Co., Inc., Valparaiso, Ind., involves some rather interesting techniques. These castings are produced to unusually close tolerances and have smoother surfaces, higher hardness and superior grain structure than comparable sand castings. Some typical examples of these castings are shown in fig. 1. Several castings in this photograph are shown with runner and sprue attached to indicate gating arrangement. The gear on the right, fig. 1, and the transmission shifter bar, top, are cast with steel shaft inserts. Teeth in gears produced by the method described in this article are cast so close to size that only shaving is required to bring the piece to final size.

Permanent mold castings produced at McGill are

cast exclusively of an aluminum bronze alloy of the following analysis: Cu 85 pct to 88 pct; Al 10 pct to 11 pct; Fe 2 pct to 3 pct. Physicals of these castings show a tensile strength of 75,000 psi to 85,000 psi, a yield strength of 36,000 psi, an elongation of 17 pct to 26 pct and hardness of Rb 72 to 85 as cast. Higher hardness values can be achieved by heat treatment.

This aluminum-bronze alloy is used exclusively for it has been our experience that it is the only copper-base alloy having the high fluidity considered necessary for this type of casting. Other bronzes and brasses do not flow freely enough for gravity pouring into metal molds which, although kept hot, still exert a decided chilling action on an alloy that has a melting point of 1870°F.

Many castings produced from this alloy are used as separators in antifriction bearings manufactured by the company. A large proportion, though, are shipped to McGill customers in either machined or rough form, for other uses.

Gravity-filled permanent molds such as are used in this plant are always made in two or more parts and must be held together by mechanical means. Comparatively simple and inexpensive hand-operated machines are employed for this purpose. The main

Mold Castings . . .

By B. JOHNSON, Engineer
McGill Mfg. Co., Inc.
Valparaiso, Ind.

parting of most permanent molds is in a horizontal plane but the lower block of the mold or die usually is split to clear a runner, while the upper die is pulled out or off the casting and any lower slide or core used is broken loose.

When long cores are required, they usually project through the upper half of the die and are pulled by a lever-operated rack and pinion. Because of high shrinkage, a considerable force is required for core pulling. Inserts, when used, usually project into the upper die block. Some very simple dies have a single vertical parting through which an insert may project.

Three tilting Detroit electric furnaces of 350 lb capacity are employed for melting. The furnaces are used in rotation and serve 15 or more machines and castings up to about 7 lb maximum weight are produced. Molten metal is run off in No. 10 graphite crucibles which serve as ladles and hold about 22 lb. Skimming in ladles is done on a bench with a hand tool. The caster carries the ladle down an aisle having the machines along both sides, filling each die in succession.

Dies are preheated each morning to expel moisture and to bring to a favorable casting temperature. This temperature is maintained, as long as casting continues, by heat from the cast metal. Dies are filled through an angular sprue hole in the die parting, with the metal flowing from the sprue hole through a runner and gate and thence upward to fill the die cavity. Runners and gates have to be arranged so that they clear the die and come away with the casting.

In general, the sprue, and often the runner, are sheared off in the foundry but in some cases the runner has to be left on the casting until cut off in a lathe.

One of the simplest forms of die used in the plant has a vertical parting, as shown in fig. 2. The die halves are moved together and apart by the helical cams on the shaft seen in the background. A long insert, not shown, is set in the hole which serves also as a vent and centers the bar insert in the cavity. As the casting has ample draft it is easily removed when the die is opened.

Ejection is not done with pins, as in die casting

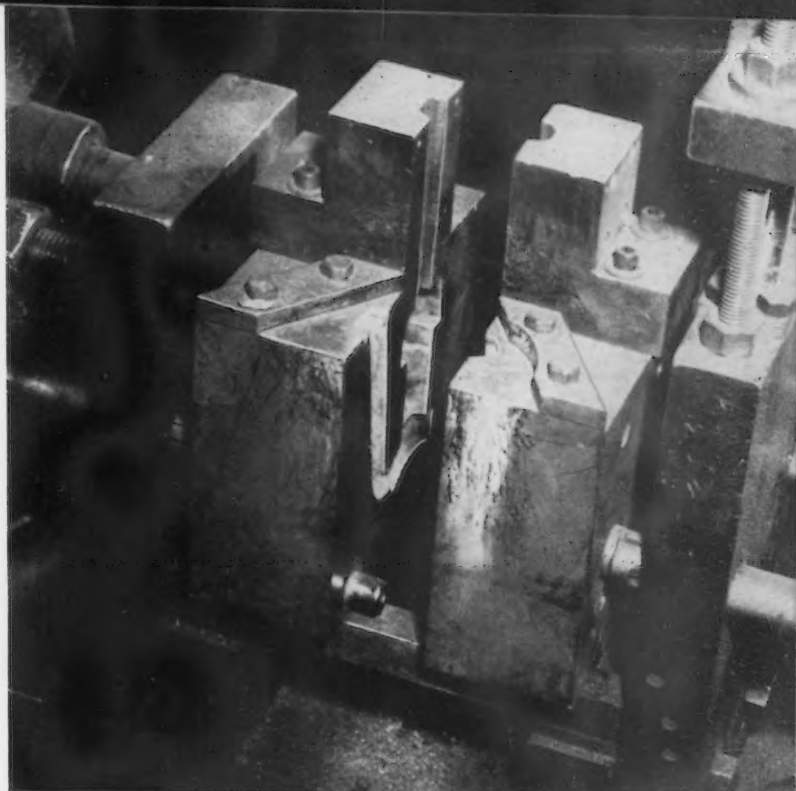
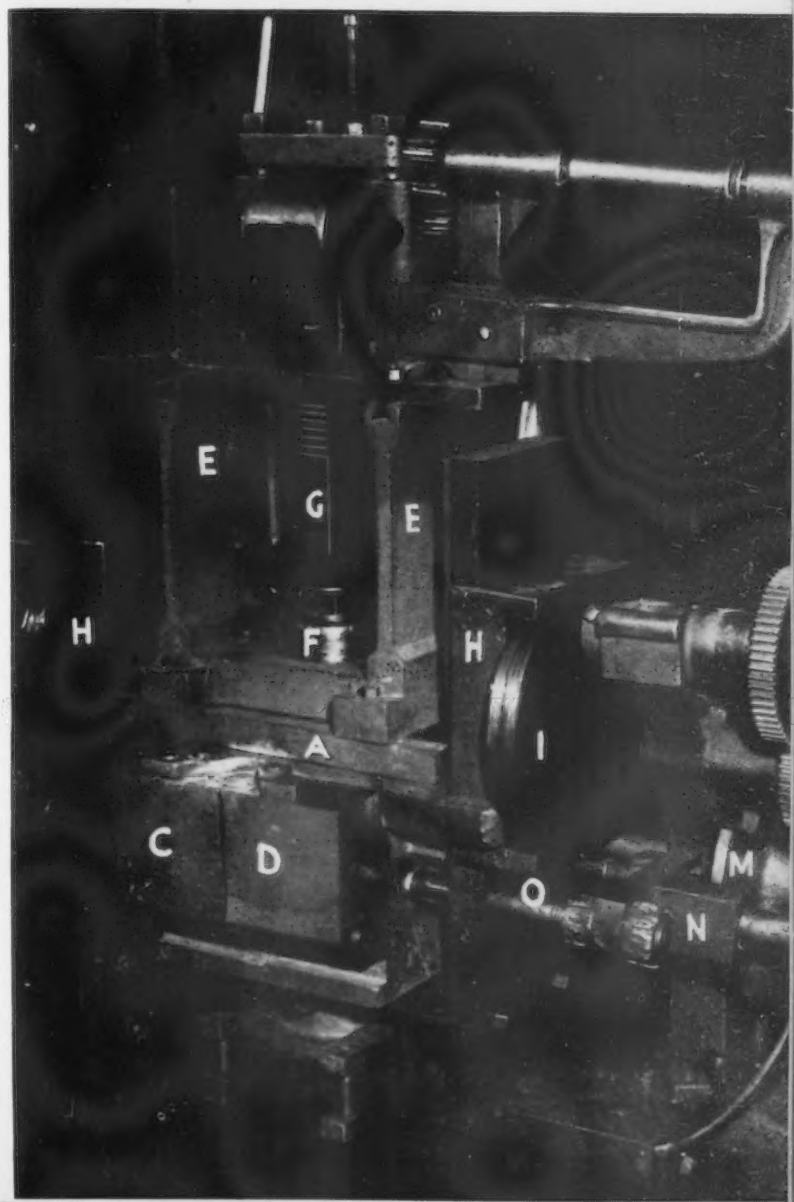


FIG. 2—Simple form of permanent mold, showing sprue hole, runner, die cavity and vent.

BELOW

FIG. 3—Permanent mold machine in closed position with main parting in horizontal position. References are described in the article.



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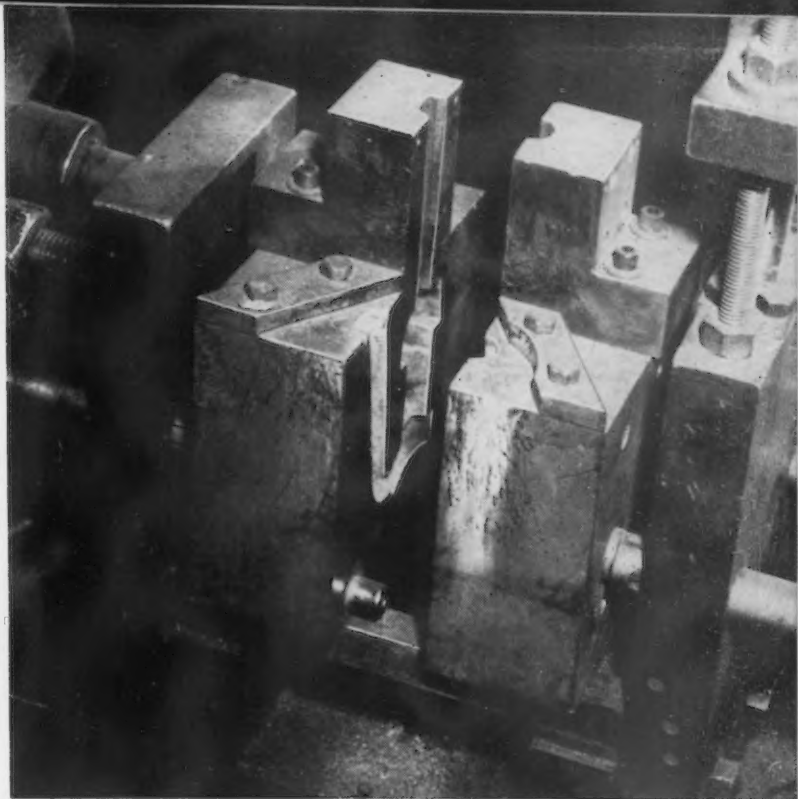


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BELOW

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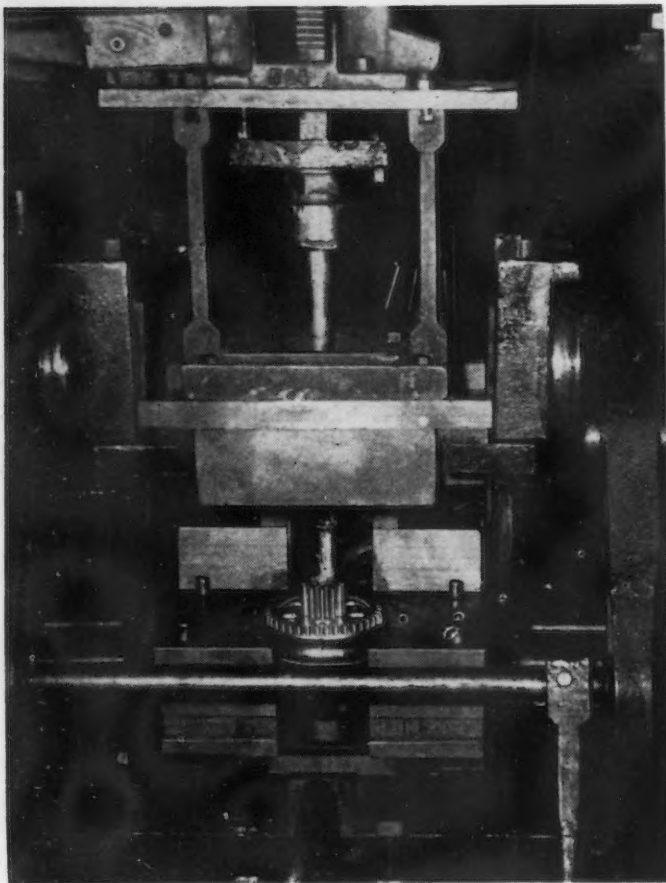


FIG. 4—After casting, dies are opened, and the casting is ready for ejection when core has been pulled and top die raised. The upper die contains the cavities forming the gear.

procedure, for since the molds are opened while the casting is still hot enough to be rather soft, use of pins would leave deep marks on the casting. In most cases the lower die block is split vertically and the halves are not fully separated until the upper block is lifted. Thus, the lower blocks hold the casting or gate so that it is not marred or distorted during ejection. When the halves are separated, the casting is free and can be lifted out with tongs.

Casting Machine Construction

Fig. 3 shows a typical set of dies locked in the simple machine used in this plant. The upper die is attached to the platen *A*, hidden by extension of the lower block that is split vertically into halves *C* and *D*. A frame, including uprights *E* supports the core pulling attachment, the core block *F* being attached to the rack bar *G*. Platen *A* rests on cross-heads *H*, each of which mates with an eccentric. One of the eccentrics is seen at *I*. An idler pinion *K* meshes with gears *J* and *L*, the latter being on a shaft that carries the helical cam *M* and its follower *N*. Similar gears and cam with follower are on the opposite side of the machine. After the core is pulled by rack *G*, the gears are turned through an angle by a lever, not shown. Eccentrics *I* then lift the cross-heads *H* and platen *A* which pull the upper die off the casting. At the same time, the gears and cams separate the two halves, *C* and *D* of the lower die block, since the cam followers *N* are attached to horizontal bars fastened to the die block halves. One bar, *O*, is clearly seen.

Fig. 4 shows the open die, with a stepped gear casting ready for removal. The upper die which con-

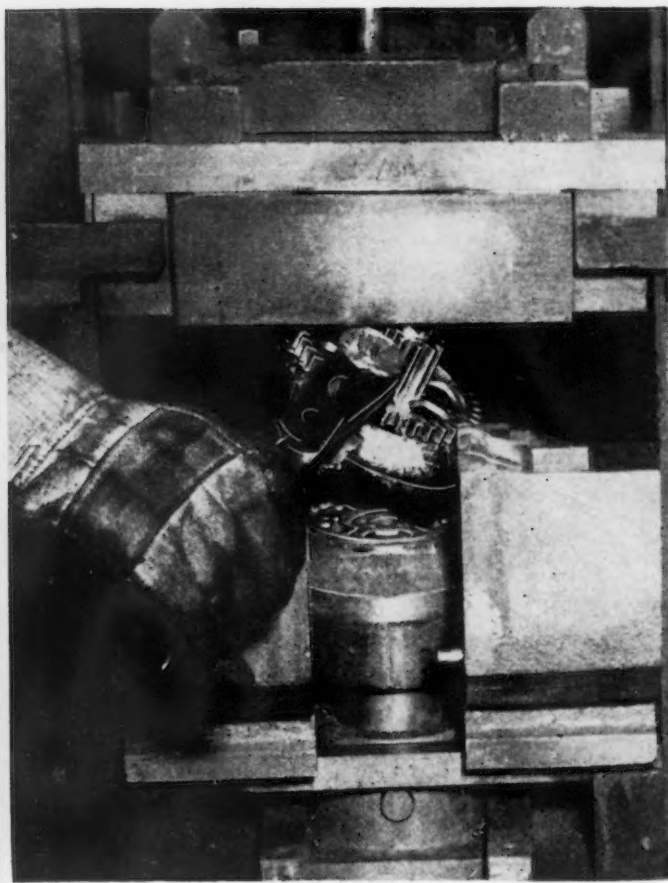


FIG. 5—Close-up of die, showing operator removing the casting. The central vertical die slide, the end of which has formed the lower face of the casting, is also visible.

tains the cavities forming the gears is elevated and the lower die blocks that have recesses for the sprue, runner and gates are shown separated.

Another view of the open die is shown from the sprue side in fig. 5, with the operator removing the casting by tongs that grip the sprue. This view also shows a central vertical die slide or core, the end of which has formed the lower face of the casting. This slide is lowered before the die is opened and while the circular runner is still gripped by the two lower die halves. The circular runner feeds the gear through gates along its whole diameter, helping to form a sound casting in which shrinkage is uniform.

Casting Steel Inserts

To produce a gear with a steel shaft insert as shown in fig. 1, an accurate method of placing and holding the insert is required. A closed die is shown in fig. 6, after the insert has been lowered through the central hole. The shaft pilots in the lower die block and is centered in the upper block by inserting an open sleeve of sheet metal, as shown. This sleeve remains out of contact with the molten alloy that is poured into the sprue hole at the parting of the lower die block.

When the die is opened, as in fig. 7, the upper die that forms most of the gear clears the casting and its shaft so that the casting is easily lifted free. The shaft has key-like slots into which the metal flows so that the shaft is securely held. In addition, the shaft, which is ground before insertion, is precisely centered in relation to the pitch line of the gear teeth.

Only a light cut, made by a hob, is required on the

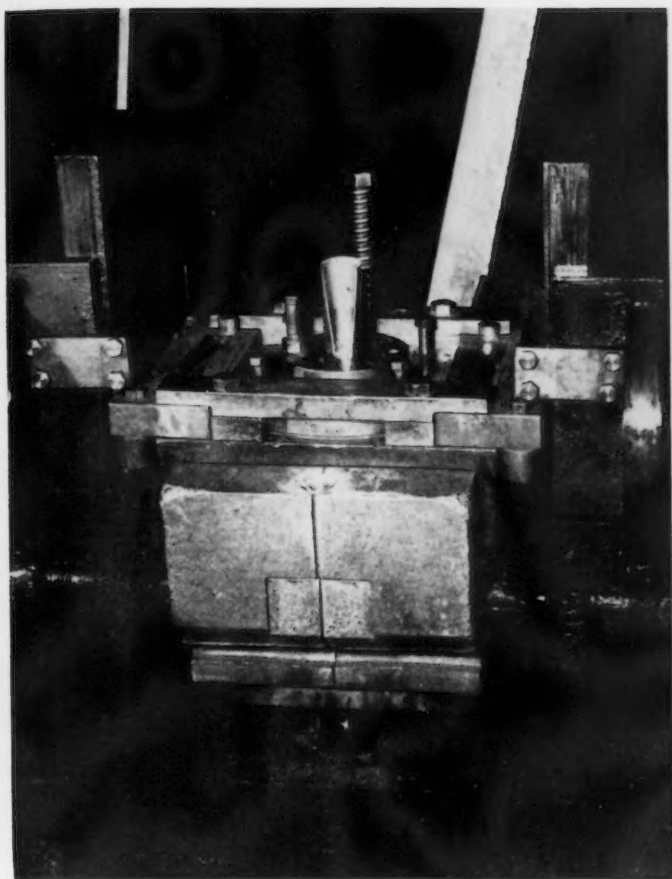


FIG. 6—When casting inserts, the insert is dropped through the clearance hole and centered by the thin sheet metal sleeve shown projecting from the upper die.

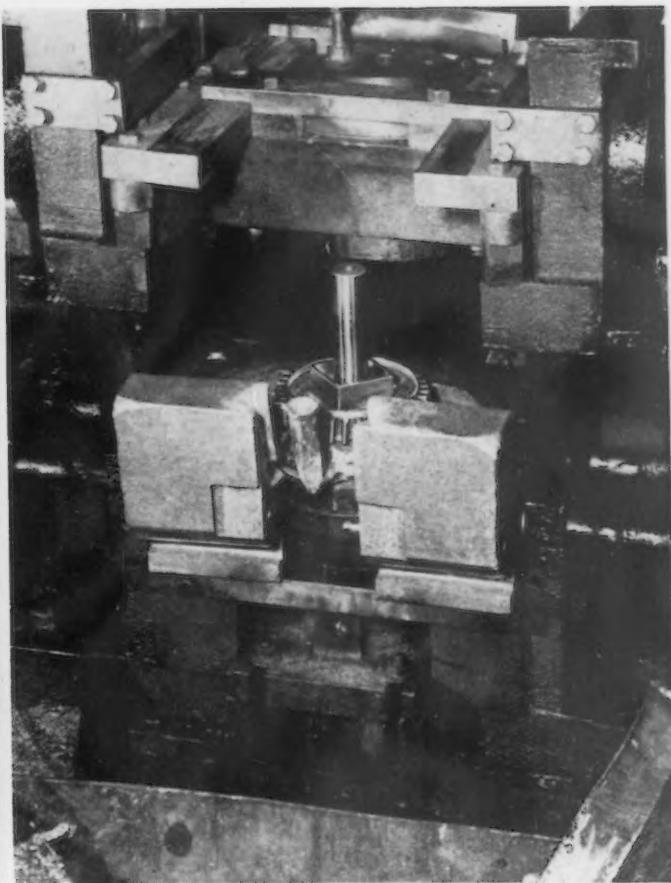


FIG. 7—Gear with a steel insert, ready for removal from the mold. The shaft insert has key-like slots into which the molten metal flows to secure the insert to the casting.

teeth after the runner has been cut off the casting. On worm gears, teeth are cast only when the pitch is large and are shaped so as to clear the die but leave enough metal to clean up in hobbing. For small pitches, teeth are not cast.

Daily Production

In general, about 150 small castings or 50 to 75 large castings per die are produced in an 8-hr day. As three men handle 15 machines, one of them is doing the pouring, labor charges per unfinished casting are small. A crew of five or six men, including a furnace tender and a helper who cuts off sprues, operates the permanent mold foundry. Considerable machine work, done in another department, is required on some casting but the amount is far less than on equivalent sand castings and cuts are lighter as holes are cored close to size and other dimensions

are held within closer limits.

Dies are cut from heat resisting steel and are sprayed with Oildag daily to help reduce oxidation, heat-checking, erosion and scoring. However, the high temperatures of the aluminum bronze is hard on dies and maintenance charges are considerable. Cores require rather frequent renewal and checking of die surfaces occurs. This does not result in rough castings, however, for with gravity pouring metal is not forced into the fine cracks produced by checking, as is the case in die casting. The low pressure also results in a comparatively slow filling rate so that air can escape and sound castings result.

Although this method of making castings, in common with all others, has its problems and limitations, these are offset by its advantages and the net result is an exceedingly useful product that finds a ready market.

Timer Counts 0.00001 sec. Intervals

AN interval timer capable of recording intervals as short as 0.00001 sec., representing a modified form of a counter chronograph used by nuclear physicists to count atomic disintegrations which occurred in nuclear fission experiments, is being used by Western Cartridge Co. Div. of Olin Industries, Inc., to check rifle firing accuracy and bullet velocity with one firing.

The brain of the chronograph is a newly developed electronic counting circuit which counts and records in 100,000ths of a second time intervals. The device, manufactured by Potter Instrument Co., Flushing,

L. I., employs a series of small neon bulbs which are lit up in sequence and a reading of the number of lights lit indicates the time interval. A tubular light bulb is mounted over the electronic unit with the light from this bulb concentrated by a cylindrical lense on to a photoelectric cell. A small lowering of the intensity of the source light, due to the passage of the bullet, produces a surge current in the chronograph which puts the counting unit into operation. Passage of a bullet through the light area of a second light screen, set at a measured distance from the first, halts the counting.



FIG. 1—Photomicrograph (100X) showing the bond obtained between the babbitt and the cast iron. Cast iron, right; babbitt, left.

Babbitting Large Cast-Iron Bearing Shells

By L. F. TRAIN

Metallurgical Engineer,
John Bertram & Sons Co., Ltd.,
Pratt & Whitney of Canada Division

FACED with the problem of tinning and babbitting large cast-iron bearing shells, the John Bertram & Sons Co., Ltd., found that, according to available literature, there was no general agreement as to the best procedure to be followed. It was realized, however, that good results could not be obtained without a tinning bath in which a half-bearing shell could be completely immersed, and a furnace was therefore constructed which would accomplish this end.

The design consisted of a tinning bath, C shaped in cross-section, and 4 ft deep. Adopting this section made it possible to cut the tinning bath requirements to 3000 lb of SAE 11 babbitt, in which shells weighing 550 lb could be immersed.

Tinning Bath Construction

The tinning bath was supported by a rectangular top plate on a rectangular steel tank 4 ft 6 in. high. Sufficient clearance remained for 12 radiant-type ceramic gas burners screwed into three vertical pipes, four to a pipe. The pipes were connected to a central header supplied with the proper gas-air mixture from a low pressure air supply and a gas inspirator. It was found desirable after preliminary trials to remove the top three burners and install two of these nearer the bottom. Heating was then satisfactory.

While the furnace was under construction various fluxes were tried on cast iron test pieces.

The first tried was a mixture consisting of:

- 8 oz zinc chloride
- 4 oz ammonium chloride
- 1/2 oz hydrochloric acid
- 1 gal water

This flux was tried both with and without a preliminary coating of copper applied, using:

- 8 oz copper sulfate
- 1/2 fluid oz. sulfuric acid
- 1 gal water

A proprietary flux which contains some stannous

chloride, was also tried. In both cases the copper coated test pieces were much the better and tinning appeared somewhat more uniform with the proprietary flux.

Experiments also showed the best tinning bath temperature was in the neighborhood of 520° F when using SAE 11 babbitt as a tinning medium.

The adhesion of the babbitt was shown to be good by testing with a cape chisel. A photomicrograph was also taken to show the nature of the bond, fig. 1.

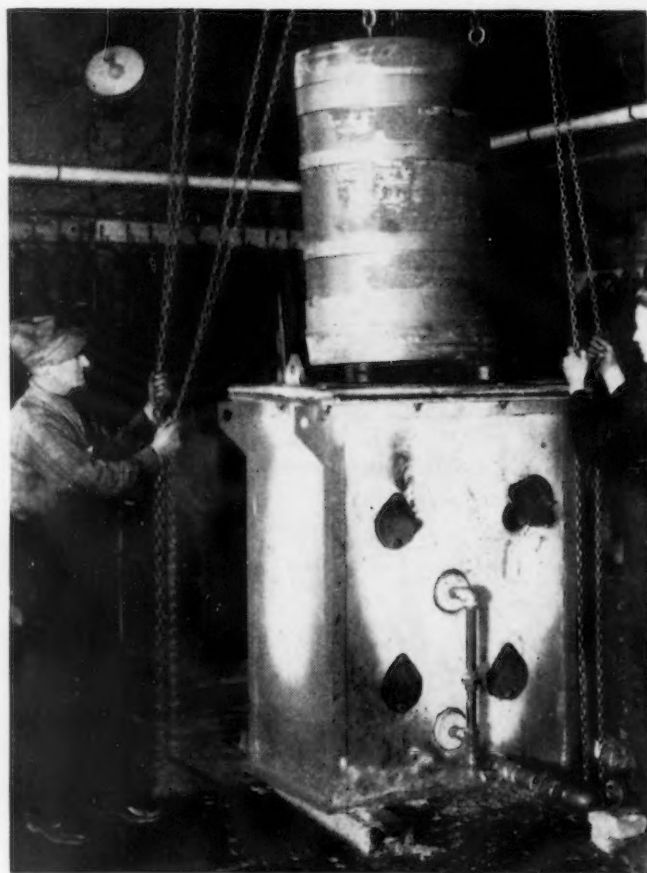


FIG. 2—The cast-iron bearing shell, painted on the inside with copper sulfate, and fluxed, is lowered into the tinning bath.

Since the bearing shells had anchor pads cast on, it was necessary to chip around these pads down to clean metal on all surfaces not machined by the boring mill operation. It was felt that pneumatic chipping was better than shot blasting for preparing rough, as-cast surfaces for tinning.

The following is a description of the procedure finally adopted:

When the tinning bath and babbitt melting pot are nearly up to heat, a shell is painted with acidified copper sulfate solution. The clean cast iron surface takes the copper very readily. The shell is then warmed to about 150° F by playing a torch on the back, and when the first copper coating is almost dry, another is applied. Flux is applied using a 4-in. brush and the shell is hung vertically to allow the excess to drain off. While still not quite dry the shell is eased slowly into the



FIG. 4—Finished bearings machined ready for installation. Approximately 5/16 in. of babbitt remains after the machining operation.



FIG. 3—The tinned shell is set against a mandrel and is ready for pouring. The babbitt has been melted in a separate furnace.

tinning bath. It has been found that a poor tinning job eventually results if the shell is too hot while fluxing. It is also bad practice to attempt drying the fluxed surface by direct application of the torch be-

fore tinning. At this stage it is easy to produce a graphitic smudge on the surface which will not tin. The shell is therefore eased into the bath while still slightly damp, fig. 2.

Prior to tinning a shell the tinning bath is heated to 700° F. Immersion of a shell brings the heat down to about 450° F. When the bath reaches 520° F the shell is removed. During tinning the shell is held under by a cast-iron weight, through which the lifting hooks pass.

Removing Dross Accumulations

There is always some dross adhering to the shell, along with excess tinning metal. This is removed by sweeping with a broom and by wiping the jointing surfaces with a hard finish cotton cloth. The shell is now quickly set up against a mandrel and bolted against the vertical face of the fixture. Asbestos sheet 1/4-in. thick is used both on the base and in vertical strips on the fixture. Leakage is further prevented by packing stiff clay around the base. The goal is to pour the bearing while the tinning metal is still molten on the shell. This has not been found difficult to do.

SAE 14 babbitt, heated in a separate ladle furnace to 725° F is well stirred with a dry hardwood stick and poured into the bearing quickly, but uniformly. A self-skimming ladle is used, fig. 3. As soon as the bearing is full, the cooling babbitt is rodded with 3/8-in. steel rods, reaching to the bottom. When the babbitt at the top starts to freeze, an oxyacetylene torch is applied, and liquid shrinkage is taken up by the addition of more babbitt from a handle ladle. This procedure goes on until shrinkage ceases and the bearing is solid to the top. When the bearing has cooled sufficiently it is removed from the fixture. If the bearing rings when struck with a hammer, adhesion is considered to be perfect. Bearings made by following this procedure ring very nicely.



Cast Phenolic Patterns

For Duplicating

VARIOUS materials such as plaster, wood, steel and low melting point alloys have been used by die-makers as a master pattern for producing dies and molds through the use of a duplicating machine. More recently a phenolic plastic has been used with considerable success, according to L. B. Miller, Rezolin Co., Los Angeles. A typical plastic master pattern is shown in fig. 1.

A pattern for duplicating should have dimensional stability and physical characteristics which will withstand the grooving and chipping commonly caused by pressure of the duplicator guide finger or stylus. Plaster has been most commonly used as a pattern because it is the cheapest method available, but it has not always been entirely acceptable because it lacks the surface hardness necessary to bear up under the duplicator guide without grooving or breaking. Chipping and breaking can be prevented by the use of wood patterns, but grooving cannot always be avoided. Metal patterns, while overcoming the inadequacies of wood and plaster, are considerably more expensive.

Wartime experience in various die shops in the Los Angeles area has proved that phenolic plastic master patterns for duplicating possess near ideal qualifications as to physical characteristics, speed of fabrication, and overall cost. The extreme hardness of phenolic plastic prevents the duplicating guide finger from penetrating, chipping or scratching the surface. An additional advantage is that the smooth surface of the phenolic master permits following details more easily since it offers no resistance to the movement of the duplicating guide, as shown in fig. 2.

A plaster or wood pattern is commonly used to produce a plastic pattern and requires only a few hours' time. Through use of a non-shrink filler the plastic pattern remains dimensionally stable after casting. Where an exact duplicate is to be made from a model, fig. 3, the usual procedure is to make a plaster cast of the model and from this plaster model make a female mold to cast the plastic pattern. Core pulls may be incorporated in the duplicating pattern to facilitate further work in the die shop. The strength and serviceability of the plastic pattern permits its use for producing multiple cavities by machining with a duplicator. This is important where hobbing is not practical.

While tooling with cast plastics was developed primarily for wartime tasks, it is also finding wide peacetime use for such purposes as match plates for foundry work, patterns for shaping acrylics and the general run of phenolic dies, jigs and fixtures.

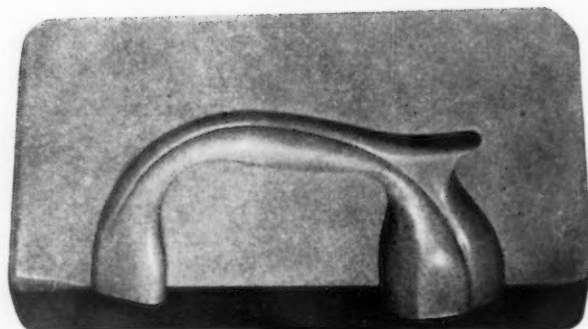


FIG. 1—Phenolic plastic pattern to be used for duplicating a handle mold for compression molding

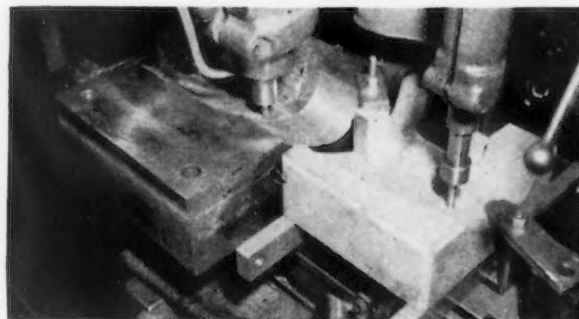


FIG. 2—Duplicating a juicer part from a plastic master pattern on a Gorton Duplicator.

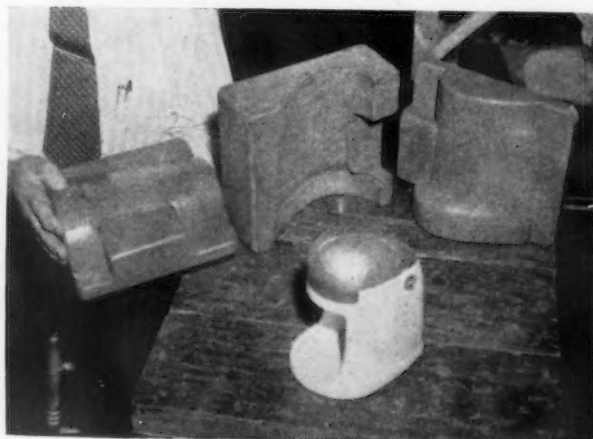


FIG. 3—Citrus fruit juicer model and male and female phenolic duplicating patterns in the background.

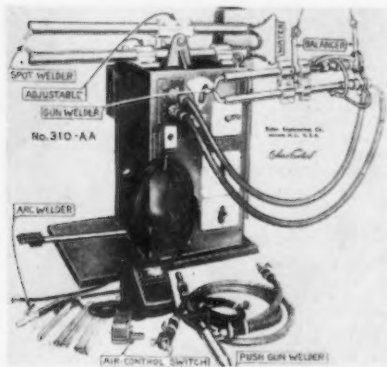
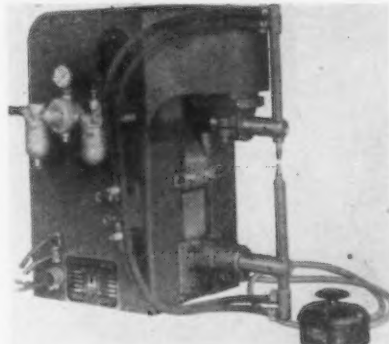
New Equipment . . .

Welding

. . . Various developments of general utility in all types of welding equipment including battery chargers, welding electrodes, bench type spot welders, projection welders, portable welders, heavy-duty machines, plastic lens, dial feed welders, automatic press welders and many other devices are described in this week's digest of manufacturers' announcements.

ESPECIALLY suited for spot welding all types of sheet metal work, the No. 310-AA Universal spot welder has been announced by the *Eisler Engineering Co.*, 750 S. 13th St., Newark 3, N. J. In addition, it is said the unit can be used with a hand operated push type and tong type gun welder, and for ac arc welding. The gun welder can also be supplied with air operation. An important feature of this machine is claimed to be the unusually deep throat provided by both horns which can be lengthened or shortened by sliding them in the bearings to fit the size and type of

inder, pressure switch and can be furnished with built-in NEMA 1-A electronic timer. The solenoid valve control of air cylinder by adjust-



sheet metal work to be welded. This machine is intended for deep sheet metal work of light gage, but will also weld heavier work in the short throat position.

Bench Type Spot Welder

ADDED to the Universal line of 1 kva and 3 kva air operated midget bench type spot welders is Universal USP-7½, announced by *Davis & Murphy*, Davis Bldg., 5252 Broadway, Chicago 40. It is of the plug-in type and is equipped with solenoid valve control of air cyl-

able pressure switch is claimed to provide a wide range of uses for welding non-ferrous metals, wire, jewelry, and sheet steel up to 16 gage. Initiation of welding cycle is by electric foot switch and the machine is equipped with water cooled transformer and electrodes.

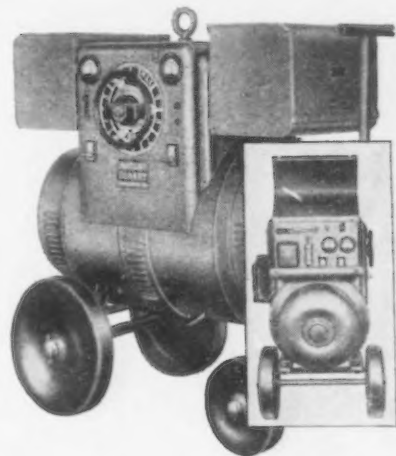
Welding Electrodes

THE addition of two entirely new groups of high tensile arc welding electrodes to the Murex line, have been announced by *Metal Thermit Corp.*, 120 Broadway, New York 5. These electrodes, it is claimed, are the first to provide two complete series of all position high tensile electrodes; one having an AWS-ASTM XX10 type of coating and the other a coating of the AWS-ASTM XX13 variety. They are said to be developed to meet the requirements of fabricators of power plant piping and equipment, but applicable to a variety of welding applications involving high tensile steels. These electrodes are said to provide a wide range of well balanced mechanical proper-

ties, and to make it possible to select weld metal very closely matching many high strength steels in tensile strength and ductility.

Battery Charger and Welder

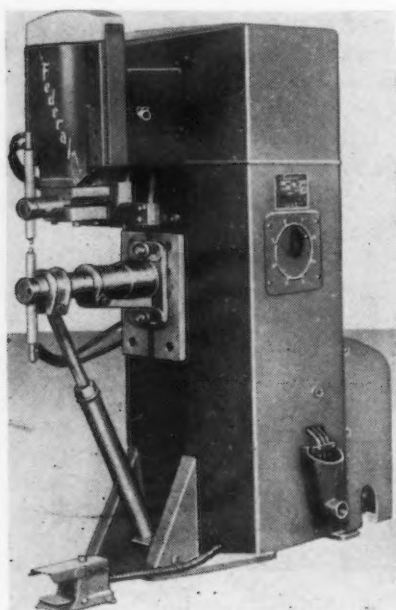
ABATTERY charger-arc welder combination for charging railway coach batteries and electric arc welding has been announced by *The Hobart Brothers Co., Motor Generator Corp., Div.*, Troy, Ohio. This dual purpose machine was designed for the railroads, but is said to be adaptable to a wide variety of shops



where batteries are charged and electric arc welding is done. It has complete, separate control panels with instruments, one for each battery circuit and one for the welding circuit. A switch from charging to welding or from welding to charging can be made as easily as operating a charger or welder separately. All models include MGC panel circuit for charging railway coaches at a maximum rate of 200 amp at 50 v, dc, and 150 amp at 50 v, dc.

Automatic Press Welder

AN automatic hydraulically operated press type welder in 30, 50 and 75 kva capacities suitable for either spot or projection welding has been announced by the *Federal Machine & Welder Co.*, Warren, Ohio. An unusual feature of this machine is the inverted type hydraulic cylinder through which welding pressure is applied. The cylinder is a part of the slide or ram, while the piston is the so-called fixed member, its upper end being secured to the top of the welder by a heavy transverse, adjustable spring. The operator has but one control to consider after the welder

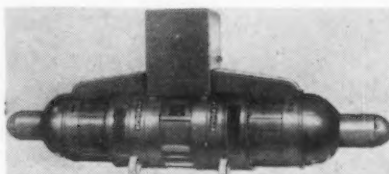


has been set for a specific job. This is a foot switch attached to a flexible cable which permits easy positioning for each job. A single light pressure and release puts the welder through one complete welding cycle. The speed of the weld is governed by timing controls, and automatic recycling will continue as long as the switch is held in contact.

Welding Generator

A WELDER of 1200 amp comprising two 600 amp generators, close-coupled to an ac induction motor, and equipped with complete motor control has been announced by *The Lincoln Electric Co.*, Cleveland, for use with the company's Lincolnweld Process of automatic metallic shielded arc welding. The unit is said to be of arc welded steel, drip-proof construction and is

completely wired, ready for connection to the ac power source and to the Lincolnweld head of the stationary, self-propelled carriage or tractor type. This welder consists of two equally rated generators



with their output leads paralleled in the control box by means of copper jumpers between studs of like polarity. One terminal is marked "Electrode" and the other marked "To Work." The copper jumper on the positive side is made removable. Designated as SA-1200, this welder weighs 3200 lb and is designed for easy mounting by means of four feet two on each side.

Welding Control Unit

AN Ultra-Speed welder control unit, announced by *Progressive Welder Co.*, 3050 E. Outer Drive, Detroit 12, is said to permit automatic assembly welding rates up to 900 spots per min. It has been designed to meet the increased demand for fully automatic multiple-spot resistance welding machines capable of producing a large number of joints quickly and in one operation. These machines can be built to accommodate an almost unlimited range of weld spacings and locations such as are required by automotive, refrigerator, stove and sub-assemblies. The welding guns can be arranged in single or multiple rows, circles, steps, curves, either closely spaced or spanning the full width of large panels. Individual timing of each welding



gun permits the spot welding of different thicknesses of metals during one complete operation.

Electric Brazer

FOR making lap joints in copper strap, attaching terminals to cable, brazing coil ends and general copper smithing work, a portable 5 kva brazer weighing only 30 lb

has been announced by the *Westinghouse Electric Corp.*, Box 868, Pittsburgh 30. This brazer, which requires connection to a 220-v source, consists of a transformer, voltage selectors, controls, and carbon-tipped tongs. Alternating current from an adjustable voltage transformer passes through the tongs and parts to be brazed, raising the temperature to a point at which the brazing alloy melts. Three outlets are provided on the control panel for 8, 6 or 4 v. Voltages are easily and quickly adjusted by inserting bayonet plugs attached to the brazing leads into plainly marked receptacles. A foot switch with pilot cable serves as



the primary control switch. For use with air-cooled tongs, this device is supplied with a handle for carrying.

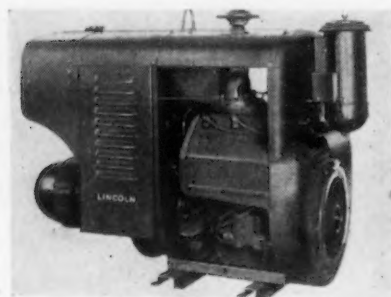
Arc Welding Electrodes

TWO improved electrodes for shielded arc welding of stainless steels have been announced by *The Lincoln Electric Co.*, Cleveland. Known as Stainweld A7 and Stainweld A7-Cb, they are made for welding steels of the 18 pct chromium and 8 pct nickel type in all positions. Stainweld A7 is recommended for use with stainless steels designated by AISI as No. 304 and 308. It is said to produce a smooth and steady arc with easy slag removal and is suited for operation on dc or the higher voltage type ac welding units. Stainweld A7-Cb is columbium stabilized and has operating characteristics similar to the first. This electrode is recommended for use with stabilized 18-8 stainless steels designated by AISI No. 321 and 347. Both electrodes

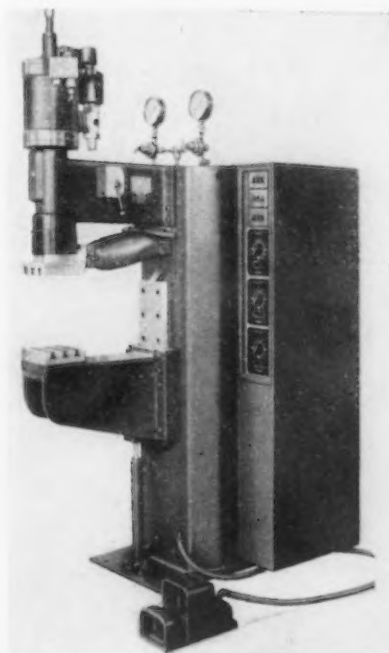
are said to be recommended for weld-surfacing where an austenitic surface of medium hardness and good corrosion resistance is required.

Portable Welder

A PORTABLE welder of the gasoline engine-driven type, has been announced by *The Lincoln Electric Co.*, Cleveland. It is said to be of particular value for welding applications in areas where electric power is not readily available such as farms, oil and gas fields and construction work. This 200 amp welder known as the Shield-Arc Jr., of compact design measuring 24 x 48 x 30 in., and weighs much less than the usual equipment of this type and size. With a current range of from 40 to 250 amp, the machine can be used for the welding of light or heavy gage metal, for the repair of cast iron structures such as engine blocks, for the construction of various con-



followup of high electrode pressure reduces brittleness, sheet separation, and assures uniform welds with a minimum supply of power. The machine is a self-contained



unit, with electronic controls mounted in a hinged cabinet, convenient to the operator.

Heavy-Duty Machine

A HEAVY-DUTY, straight-line machine, known as the Oxweld-Unionmelt CM-37 machine carriage, has been announced by *The Linde Air Products Co.*, Unit of *Union Carbide & Carbon Corp.*, 30 E. 42nd St., N. Y. It can be used for carrying Unionmelt electric welding equipment, the CMA-21-B attachment for plate-edge preparation, single- or multiple-blow-pipe setups for straight-line cutting, flame-hardening equipment, and the Oxweld C-45 blowpipe for cutting extra-heavy sections. It is claimed that the use of high-strength aluminum alloys in the construction of the machine provide it with an ideal strength-weight ratio. Its weight without equipment is 87 lb, and it can be moved readily from job to job. This machine will operate on CM-21 track or, where accuracy of travel is not important, it can be operated on a standard 10-in., 25.4-lb I-beam. It also can be operated directly on the steel plate or other flat workpiece, if desired.

Projection Welder

THE advantage of forging pressure is provided in a 150 KVA Projection Welder, which has been announced by *Sciaky Bros.*, Chicago. The pressure sequence consists of an initial low pressure during the flow of welding current. This is sufficient to establish good contact without burning off the upper side of the projections. The pressure is also low enough to prevent a crushing of the projections which would reduce the heating efficiency of the welding current. A forging pressure of higher value follows immediately after the passage of welding current. This quick

All Purpose Electrode

FOR use in all position welding of brass, bronze, copper, cast iron and steel, a phosphor-bronze electrode has been announced by the *Alloy Rods Co.*, York, Pa. Designated as Cupro-Arc "C," this electrode is designed for operation with dc and reverse polarity. It conforms to AWA-ASTM specification E-Cu-2A and will also meet Navy specification 46-E-5 requirements for Grade II electrodes. Typical applications are repair and maintenance of bushings, bearing surfaces, castings, gears, propellers and piping; fabrication of copper-clad metals, and welding dissimilar metals such as brass to bronze, cast iron to steel, bronze to steel, and bronze to cast iron. Spatter loss is minimized with a resultant unusual deposition efficiency, and the deposit is sound and homogeneous with no porosity, and slag removal is easy.

Portable Welding Outfit

A COMPLETE, portable welding outfit installed in a convenient carrying case, called a magic wand



welder, has been announced by *Patent Specialties, Inc.*, 4020 10th Ave., New York 34. Arc welding, brazing and contact soldering are three types of operation possible with the outfit. An important feature is the fact that instant operation on ordinary 110-v, 60-cycle ac current, indicates possibilities available for home as well as shop mechanics.

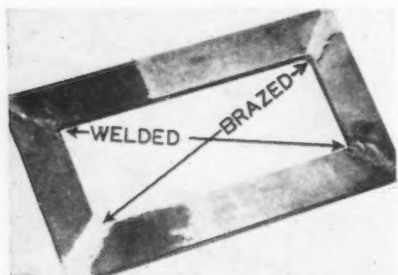
Light-Weight Torch

A LIGHTWEIGHT torch for welding, which can be effectively used with natural or manufactured gas, acetylene, butane, or other low temperature gas, com-

bined with oxygen has been announced by *Weldit, Inc.*, 641 Bagley Ave., Detroit 26. The torch is said to be especially adapted to silver brazing, jeweler's work, aluminum welding, lead burning, aircraft production, and wherever a small, lightweight torch is required. It is made of brass, with the base casting of brass and copper. Employable tips are from 0 to 6 inclusive. Overall length is 8½ in. and weight 7 oz. complete. The torch is designated as Weldit Model UN-45.

Flux Remover

DESIGNED to remove flux and welding or brazing scale, a compound, known as Optimus Deoxidant No. 3, has been announced by *Optimus Detergents Co.*, 137 Church St., Matawan, N. J. It is being used to deoxidize the surfaces of a wide variety of metals and alloys. It is acidic in nature, and may be used on most metals as a mild deoxidant without serious etching of the surface. This material is used regularly on welded steel tubing, brazed, hot rolled and cold rolled steel, copper, brass, welded aluminum, cast iron, bronze castings and most aluminum alloys. In general, oxides are removed with the formation of very little or no



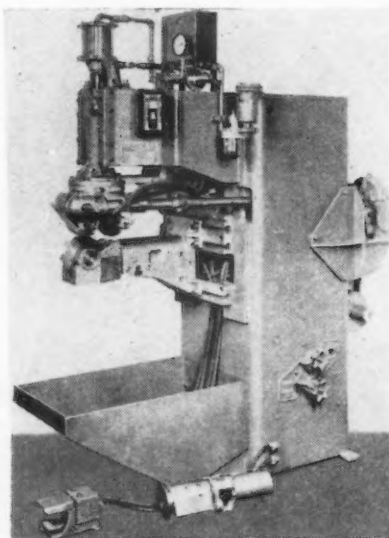
smut, and using this method, most welding and brazing scales are removed in 5 to 15 min. Ease of operation is provided, and it is only necessary to deoxidize for the required time, give work a quick rinse in hot water and the job is done.

Cover Glasses

COVER glasses for welding shields, treated with a protective coating to guard against heat breakage and damage from metal spatter, have been announced by *Industrial Products Co.*, 2820 N. 4th St., Philadelphia 33. The glasses are completely covered on both sides with a baked on protective coating which will not pit, peel or rub off.

Seam Welder

FOR work ranging from 30 to 18 gage clean, mild steel in two thicknesses, the *Thomson-Gibb Electric Welding Co.*, Lynn, Mass.,



has announced the Thomson Seam Welder, known as the model 6. This welder may be employed for circular or for longitudinal welds, or as a universal machine with swiveling upper head and interchangeable lower arm for ready and rapid conversion from circular to longitudinal seaming. It is available in various throat depths and transformer capacities to suit the work. Electronic current timing control permits a wide range of work and assures uniform, rapid and economical production.

Fluxes

SOMETHING quite revolutionary in silver-brazing fluxes has been announced by *Sherman & Co.*, 197 Canal St., New York 13, and is now available for use in civilian production. This flux, known as Nu-Braze Wonderflux No. 4, melts and forms a protective coating over the metal surfaces at 480° F. Thus, this flux is said to eliminate oxides by actually preventing their formation. Possessing a thirst for oxides, this flux is claimed to be effective on stainless steel. It can be used for all practical purposes, and it can also be painted on parts and allowed to remain for long periods without producing corrosion. After it has melted, it hardens to an extremely brittle glass which can usually be jarred from the brazed part. It is easily removed by either hot or cold water.

Plastic Lens

BAKED plastic lens coating from which smudge and smoke can be wiped with a damp cloth without affecting coating, and which is said to be considerably superior to previous types of coating for non-pit welding lenses, has been announced by *Eastern Equipment Co., Inc.*, Willow Grove, Pa. This lens is available in plates for helmets and handshields and in 50 mm size for goggles.

Dial Feed Welder

EQUIPPED with a 10 station dial feed for welding at the rate of 15 to 45 pieces a min, a regular Thomson No. 1 Welding Press has been announced by *Thomson-Gibb Electric Welding Co.*, Lynn, Mass. This unit shown handles the opening keys that are welded to tin cans. The keys are dropped into the dial pockets and fed around for the welding operation. This is a fast, sure and sim-



ple process. The press to which this dial feed is attached is a versatile production welding machine. Transformer capacity may be 30, 40, 50 or 75 kva. Throat depths may be 12, 18, 24, or 30 in. The sliding head is actuated by a special cam designed to slow down the electrode as it approaches the work and avoid hammering. Pressure may be applied by adjustable spring or air lock, or straight air pressure may be employed. Lower arm may be column or apron mounted or a lower knee and flat upper terminal pad may be used. Interchangeability of all these parts makes it readily possible to adapt this welding press to a wide variety of spot and projection welding operations.

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CARBON STEELS**

**HEAT TREATABLE—
TO Rc60**

**PLATABLE &
MACHINABLE
—NO PORES**

BRAZABLE WITHOUT FLUX

**LOWER COST—
SIMPLER DIES, LESS FUSSY MATERIALS**

**LARGER PIECES FEASIBLE—
LOWER FORMING PRESSURES**

The conventional powder metal part is porous. Sometimes that's desirable. Sometimes it isn't.

If you're reaching for top tensile and impact strengths, or extra hardness, or the ability to electroplate or machine the finished item—you don't want a porous structure.

That's why we're happy to announce that our research has produced a new and non-porous type of powder metal part—SINTEEL-G. It's a sintered steel compact in which every interstice is filled with a copper-base alloy—the iron-base skele-

ton and the copper-base filler being "cemented" into one continuous alloy structure.

But there's more to the material than strength, heat treatability, platability, and machinability. SINTEEL-G pieces can be made more cheaply and in larger sizes. Several simple parts can be self-brazed together (without flux) into more intricate shapes than can be pressed in one piece.

Your cue is to determine which parts of your product should be made in SINTEEL-G. Perhaps our invention will prove to be your progress.

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AMERICAN ELECTRO METAL CORPORATION

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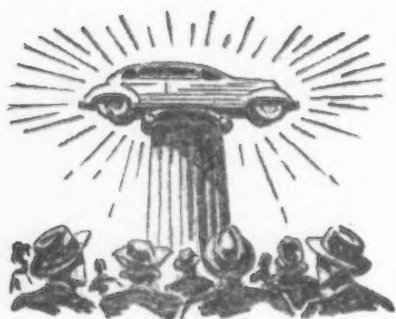


THE IRON AGE, April 4, 1946—91

Assembly Line . . .

STANLEY H. BRAMS

• Auto union convention will result in enlarged try by Walter Reuther to impose his economic theories on industry's fabric, while continued factionalism in shops will hurt output.



ATLANTIC CITY, N. J.—For a time last week at the annual convention of the CIO United Auto Workers Union there appeared to be a fair chance that management would have more peace in its shops in the period ahead, at the price of more bleeding of the harried hides of its executives. But by the end of the week it had become apparent that the hope of quietude in the production departments was little more than a mental mirage, while the cost in terms of lacerations in the front offices showed no signs of diminishment.

In a simpler word, the auto union comes out of its tenth annual meeting just as factionally torn as ever. The indication that Walter Reuther's left-of-center, but so-called right wing caucus had won complete control of the delegates vanished after it had elected him president of the union, leaving the way quite clear for the red-headed volunteer adviser to management to pursue the economic theories he espoused before and during the General Motors strike, now with the greater prestige of his new office. And beyond that present office it became crystal clear at Atlantic City that the ambitious Mr.

Reuther has his eye fixed on the presidency of the CIO, if not beyond. It is only a matter of time before Reuther reaches for the nominally topmost job in CIO from the actually most important spot as president of UAW. At 38, Reuther stands at the threshold of a widening way in which to walk.

But that road's end is lost in mist. Nearer at hand, much more clearly outlined, is the program ahead that the union under Mr. Reuther will seek to impose on management and its shops.

While the cheers of his backers were still echoing in the paper-littered meeting room Mr. Reuther was outlining his program to newsmen. His very first words echoed the formula with which he key-noted the early stages of the General Motors strike—higher wages, unchanged prices. Quite clearly the refusal of GM to talk pay raises linked to commitments on prices—a refusal which lengthened the strike and created mutual bitterness between the parties—has discouraged the new auto union president not one whit. His convictions, and those of the brain trust he has assembled around him, are bloody but unbowed.

Next he outlined an aim, another not new with him, of obtaining industry-wide agreements between management and labor. This would

mean equal pay for equal work between companies as well as within them. It would mean a stabilizing of rates, too, as between geographical areas. Woven into this program also is the objective of an annual wage. While Mr. Reuther was announcing it he was pointing out that it was hardly possible to achieve until seasonal cycles of production and sales were ironed out, in order to stabilize work all around the year. And so, to stabilize work, it will be necessary for labor to go into consultation with industry. Management prerogatives are obviously due for more mauling!—in autos today, in other industries tomorrow if the red-headed boss of the UAW makes good the long-term aims which so obviously exist.

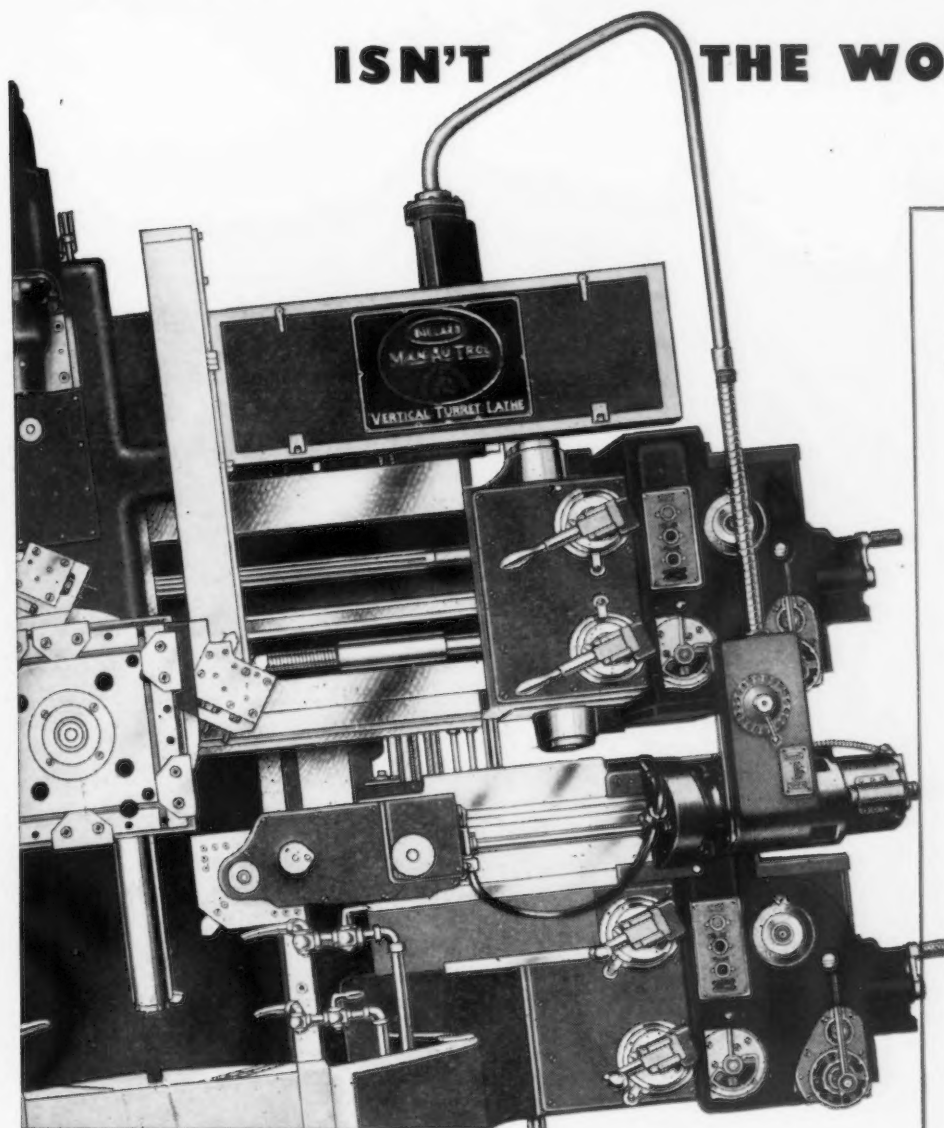
THEREIN lies one significance for management of the change of top officers in the auto union. R. J. Thomas is a burly, good natured fellow who believed in the dignity of labor, but believed it in earthy terms of better working conditions, better pay. "Reuther knows all about multiple correlations," he said derisively in a campaign speech, "but I never saw one of those things in any shop I was ever in!" But industry will hear more of the multiple correlations Mr. Reuther and his little circle of advisers cherish as assiduously as

MORE MIDGET CARS: This little car, which has a transparent plastic top, and stands 48 in. high and measures 140 in. from bumper to bumper, was designed by George Bartell, Detroit garage man. The bug-type car is 60 in. wide, weighs 2200 lb and runs on a 100-hp motor.



Reconversion

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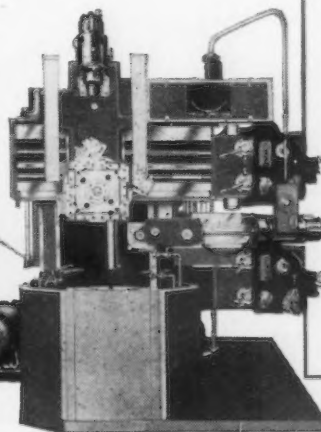
Makes Automaticity Versatile. Automatically handles any work within manually-operated scope of Vertical Turret Lathe. Converts instantly to manual operation on same or entirely different piece without affecting automatic cycle.

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Reconversion means changing *back*. What business needs today is to change *forward* . . . to new machines and new methods that will increase output per man-hour . . . thus lowering unit costs so that more and more people can buy.

That is the only way higher wages and more jobs can be created while business retains the adequate return on investment that pays for the new machines and new methods. The Bullard Company, Bridgeport 2, Connecticut.



any left bank Paris garret dweller ever cared for his art.

When Reuther swept a triumphant way to the presidency it appeared that he would be able to go on and elect his own vice-presidents and seize control of the executive board for once and for all—because his friends as well as his enemies recognize that the political organization Reuther would be able to build in the presidency with a completely friendly board would deliver him votes as long as ever he wanted them. But those who anticipated the situation that way—including all sides—reckoned without the ebullient auto workers themselves.

R. J. Thomas, whom they had repudiated on Wednesday, was nominated for vice-president on Thursday and elected over a Reuther candidate. Richard Leonard, on the Thomas-George Addes side of the fence, was that party's candidate in the next vice-presidential race and won by an eyelash after 5 hr of vote-checking. So Mr. Reuther's control of the executive board dwindled to nothing.

AND the significance of that will not be lost on managements who know their labor picture. One promise Mr. Reuther had made his

caucus, his backers, the press and everyone else, that if elected he would drive the Communists out of the union. Communists he meant for sure, but he intended more than that—his program was to consolidate power, and that meant eliminating dissidents, whether the Communists who hate so bitterly his Socialist party views, or the actual conservatives like Thomas, without great objection to maintenance of the status quo.

Had he been able to do that, management would have been relieved of the petty, endless series of strike disturbances, strike threats, production inefficiencies and other shop annoyances which have plagued them these past years. In General Motors, where Mr. Reuther ruled his men efficiently, there have been comparatively few work stoppages this decade. Such a record is possible with strong centralized union control, and had Mr. Reuther won all his aims at Atlantic City the same strong centralized control would have been imposed over the whole union. But that was not to be—the factionalism within the UAW continues, and the efforts of the two sides to strengthen themselves among the rank-and-file will continue to un-

stabilize the base of work operations.

Notwithstanding this, the giant auto union will move to adjoining fields under Mr. Reuther to continue its expansion of the past 10 yr. First on the list of objectives is the organizing of a quarter of a million or so white collar workers in companies under UAW contract—General Motors is first on the list, it would seem. Simultaneously, the auto workers will strike out to line up the farm equipment plant workers, some of them already under UAW banner, others under the leftist Farm Equipment Workers Union of the CIO, most of them unorganized.

It will be a lively year. The barb of Reutherish remarks, launched from his new post of greater vantage, will set many executive flanks quivering, and start many Congressmen jumping, and land on many front pages between now and September 1947, when the next union convention will be held.

To Triple Car Parts Output

Buffalo

••• General Motors plans to triple prewar production and employment of its local Chevrolet plants. New peaks in output of motors, axles and gears are expected in about two months and the employment will exceed 10,000, compared with about 3500 before the war.

While employees began returning to the plants on Mar. 27, considerable reconversion work and installation of new machinery and equipment will delay the resumption of production.

Farm Sales Off Sharply

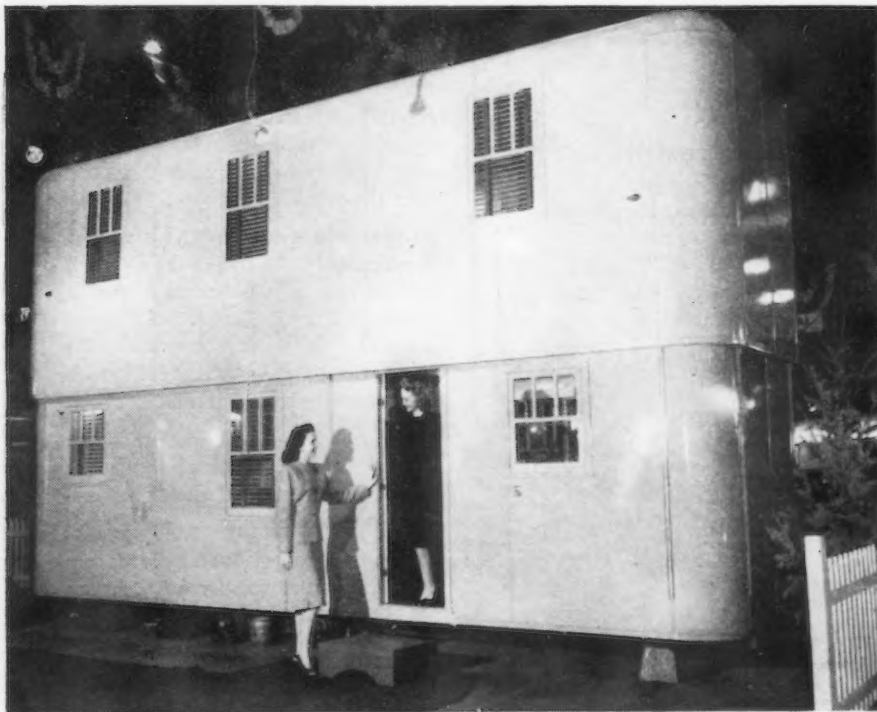
Milwaukee

••• Declining shipments of farm equipment were reflected in the annual report of Allis-Chalmers Mfg. Co., which showed bookings for 1945 of \$124,867,555 compared with \$253,239,255 for 1944.

The report points out that, in keeping with practice in the tractor and farm equipment industry, orders are not booked until actual shipments are made.

The company's sales billed for 1945 totalled \$290,375,325 as compared with 1944 billings of \$379,485,631. Net profit for the calendar year 1945 was \$7,090,467 compared with \$9,327,616 in 1944.

SECOND-STORY TRAILER: Exhibited at the National Trailer Coach Show in Chicago, this portable double-deck home can accommodate eight people, six in the three bedrooms upstairs and two downstairs. When collapsed, it measures 10 ft, 10 in. high.

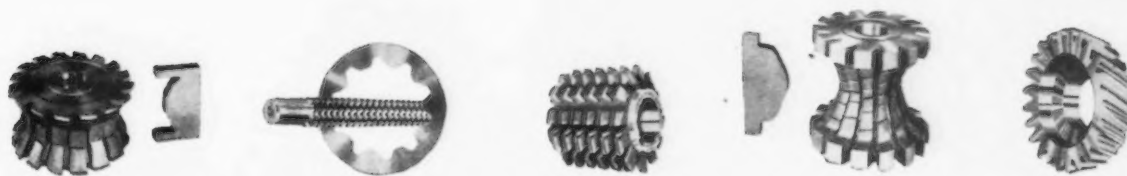




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• All important steel producing centers may become basing points, says Tariff Commission . . . Big postwar world demand for American steel.



WASHINGTON — Covering almost every phase of the industry here and abroad, the report of the U. S. Tariff Commission on iron and steel is unusually comprehensive.

It is one of many reports being prepared by the Commission for the Senate Committee on Finance and the House Committee on Ways and Means. These committees, which initiate tariff rates to be passed upon by Congress, asked the Commission to investigate the principal domestic industries which have been affected favorably or unfavorably by the war and to report regarding their pre-war status, the changes and developments that have occurred during the war, and, so far as possible, their probable postwar status in foreign trade and international competition.

The Commission sees big world markets for American steel in the immediate postwar period but in the more distant future, it sees, for one thing, the possibility of contraction of exports from this country if rehabilitated European competitors are more efficient than they were before the war and have made the relative technological progress that has been made in the United States.

Commenting on price policies

and the basing point system, the report says that it is doubtful whether so large a measure of price stabilization could have been achieved without the high degree of integration which prevails in the industry and without the basing point system of uniform delivered prices. Yet the Commission declares that published prices are "by no means rigidly adhered to, particularly in periods of rapidly falling or rapidly rising demand, and so do not represent actual average sales prices."

Quoted prices, it is pointed out, are subject to adjustment in individual sales, particularly sales to large consumers, who because of their superior bargaining position are often able to obtain reductions in the published base prices and other concessions such as absorption of freight, elimination of extras and special rebates. The report says a reverse situation exists in time of rising industrial activity, "when the bargaining position of sellers improve and they often cancel concessions previously made and even charge more than the base price when large quantities are demanded for prompt delivery."

Despite these reported contrasting conditions, however, the Commission says, "There is evidence to indicate that the stability of iron and steel prices is not greatly lessened by such adjustments with large consumers." So it would seem that even though it does not think trade journal quotations are "rigidly adhered to" the Commission believes they are pretty well on the beam.

Noting the recent trend toward more basing points, the Commission shares a common view that "the ultimate result may be the designation of all important producing centers as basing points."

Discussing disposition of war-time built steel plants, the Commission says that the taking over by private companies of some of the new and efficient government-built facilities will probably tend to force some of the older and less efficient facilities out of use. Retirement of certain old marginal facilities, it is pointed out, is to be

expected in any case, and the competition from the new furnaces and other equipment will only accelerate such retirement. The report makes the rough estimate that about 5 pct of the total iron and steel capacity will be scrapped within a relatively short time.

"On the whole," says the report, "if the government-owned plants go to present operators, nearly all of whom have an option to take them over, disposal of plants is likely to have only a minor effect on the distribution of total capacity between the 12 largest integrated producers, on the one hand, and the smaller producers, on the other."

The position of certain large integrated producers in the blast furnace branch of the industry was strengthened during World War II, it was stated. This trend will probably continue, it was added.

"Should some of the large integrated companies, for whose works most of the best and largest blast furnaces were built by the government during the war, decide to offer favorable terms to the government for taking over those facilities, as they have an option to do," said the report, "the government would find it hardly practicable to dispose of them to other than their present operators."

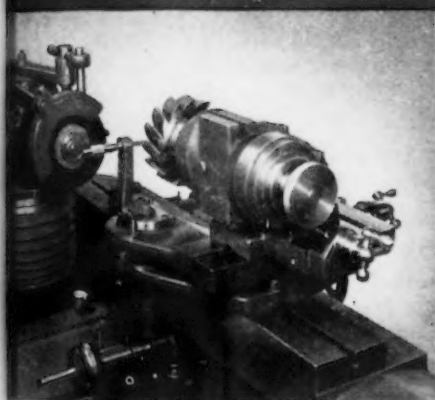
THE report stated that the future of government-owned and government-financed plants in the Far West may present a special problem, as the steel capacity was more than doubled and the pig iron capacity more than trebled during the war, mainly through the construction of the Geneva, Utah and Fontana, Calif., plants. These plants, with those previously in existence, have a steel ingot capacity considerably greater than the maximum prewar consumption in that area. The Commission, however, said postwar consumption of steel in the Far West may be considerably larger than in prewar years.

The Commission does not share the view, which has been on the wane recently, that substitutes are going to upset markets for steel. On the contrary, it said without

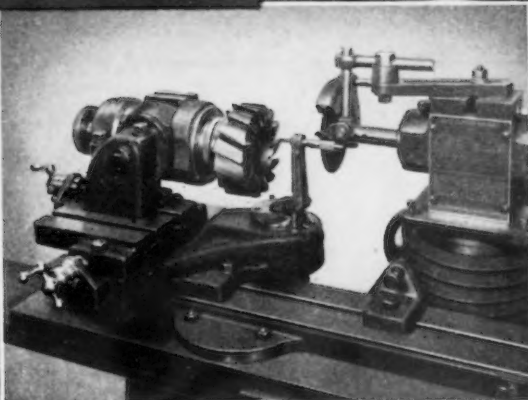
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qualification that steel will doubtless continue to be the dominant construction metal, even if other metals are substituted for it in some fields. Steel, it was pointed out, is still much the cheapest metal "and in a great many uses it is distinctly superior even to the more costly metals."

It is conceded that it is possible and even probable that in the future the price differential between light metals—aluminum and magnesium—will be less than it was before the war, and that, if so, many more of these light metals may be substituted for steel.

Steel has never competed with such metals as copper, lead, zinc, nickel and tin, and "probably never will," the report declared. As a result of the great advance in steel metallurgy during recent years, it was pointed out, steel can be adapted even better than heretofore to widely varied requirements and can thus better resist invasion of its traditional fields by other metals.

For plastics the Commission sees a rapid growth in use for a wide variety of purposes, but as substitutes for other materials rather than steel. Cement, it was stated, replaces steel to some extent in

construction but in general is complementary to steel rather than competitive with it.

"In fact," the report said, "if great construction enterprises calling for large quantities of cement should be undertaken in the immediate postwar period, they would also call for a heavy tonnage of reinforcing steel."

Turning to foreign competition, the Commission thinks that because the United States pig iron industry along the Atlantic Coast was greatly expanded during the war, it may improve its competitive position in those areas where most of the foreign pig iron was consumed before the war. The Netherlands, it is stated, may regain the position in the American market for pig iron it held before the war, but there "seems little reason to expect its position to be stronger." Nor, it was added, is there reason to anticipate that any other European country will have significant quantities of pig iron for export overseas. It was said to be entirely possible that imports of pig iron into the United States from India will be resumed shortly. But whether in view of the reduction in India's exports to Japan, these imports will be mate-

rially larger than in prewar years, "can scarcely be forecast."

THE prospect seems light, the report said, that early imports of semi-finished and finished steel from continental Europe will offer even as much competition in the United States market as they offered before the war. Such imports of steel as do come from these war-torn countries, said the report, "will undoubtedly reach only markets close to the seaboard."

On the other hand, it was declared, Sweden and the United Kingdom, the imports from which during the prewar period were chiefly of very high-grade steels, may readily be able to compete as effectively in the United States market, even during the first few postwar years, as they did in the prewar period. Sweden, it was said, is perhaps more likely to do so than the United Kingdom is. However, the report said, with the progress of metallurgy in the United States during the war period, domestic manufacturers should be at least as strong to meet this competition as they were before the war.

Rehabilitation of the iron and steel industries in continental Europe and the installation of new plants and equipment, it was pointed out, may increase their efficiency so that they may be able to compete more effectively in the United States markets than during the early years following the war.

"The position of Germany as a competitor in the United States and other world markets for iron and steel in the long-term postwar period is likely to be materially affected by the policies of the United Nations toward that country," the report said. "Territorial adjustments may transfer some of the centers of production to other countries. Such transfers, however, would not necessarily lessen the competitive strength of Europe as a whole in the international trade in iron and steel. Exports by that part of the industry which remains in German territory may depend to a considerable degree on measures which the United Nations may take as to Germany's industries, with a view to preventing that country from again becoming a strong military power."

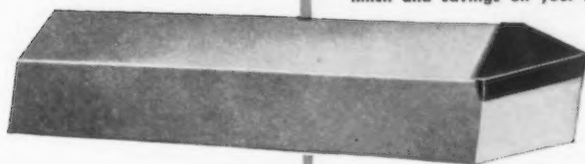
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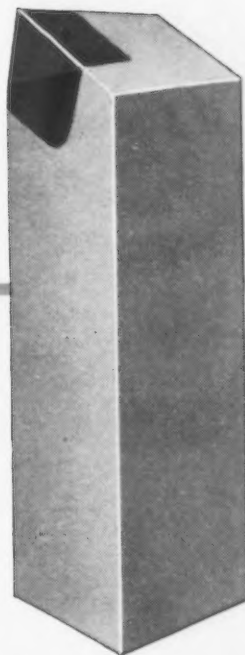


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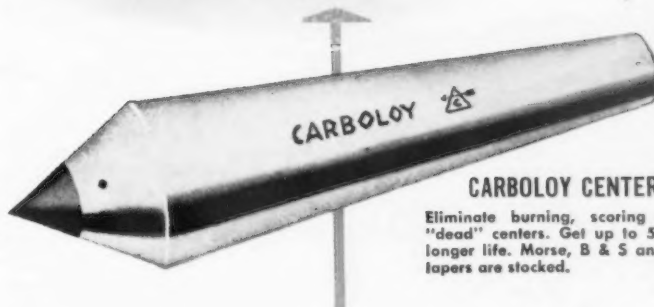
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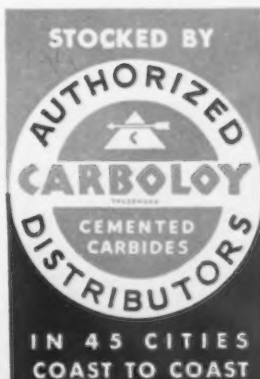


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• **Machinists return to benches as longshoremen threaten strike . . . Intercoastal water rates to be reviewed . . . Employment slumps in California as San Francisco goes after new industries.**



SAN FRANCISCO — Chips and turnings once more covered the floors of Bay Area shops as lathes and drill presses whirled into full operation with the end of the 150-day machinists' strike which had been keeping approximately 55,000 men and women from their benches.

While the differences between employers and members of Lodge No. 68, I.A.M. and CIO Machinists' Local 1304 were settled by contracts signed the middle of last month, some shops were still inoperative because of jurisdictional disputes between the two organizations. During the strike both groups worked closely together to present a united front to employers, but at conclusion of the affair it was apparent that the two organizations were determined that each should retain autonomy in shops where members of both groups were employed. This situation occurs where an employer operates shops in both San Francisco, where Lodge 68 dominates, and in the East Bay where control has been held by Local 1304.

Settlement in San Francisco gave members of Lodge 68 a flat increase of 18 pct with all the benefits of previous contracts and members of Local 1304 of the East Bay received a rate increase of 17½ pct with additional vacation and holi-

day benefits. Original union demands were for a 30 pct increase.

Intervention of the Grand Lodge of the International Assn. of Machinists is credited by employers with paving the way for the end of the costly battle of attrition which had closed up many plants employing only a few machinists as well as those almost entirely in the machine shop class. When other methods failed, Harvey W. Brown, International president, conducted a mail poll among Lodge 68 members which, it is reported, gave the International a five to one vote of confidence with instructions to accept the previous 15 pct offer of employers or to continue negotiations. With this support the Grand Lodge proceeded to oust local leaders of Lodge 68, and to take over the affairs of the local. The contracts with the California Metal Trades Assn. and members of the San Francisco Employers Council were signed by H. W. Brown, International president; Roy M. Brown, International vice-president; and H. J. Carr, International vice-president; on behalf of I.A.M.

Until conditions quiet down to the point where an election can be held by members of the ousted Lodge 68, Roy M. Brown; James Duncan of Seattle and Charles Truax of San Francisco, Grand Lodge representatives; and Harley Weeks, Grand Lodge auditor from Portland; are conducting the affairs of the group according to Mr. Brown.

The settlement of this strike which has brought unfavorable publicity to this area for so many months was hailed by Max F. Lowe, secretary of the machine shop div. of California Metal Trades Assn., as "a great step forward in establishing this area as a sound industrial center and we now expect to see great advancements made in the development of new enterprises with opportunities for both industry and labor."

Banished from its haunts in the machine shops, the specter of idleness threatens to find a new lodging place on the waterfront. CIO International Longshoremen's and Warehousemen's Union, under leadership of Harry Bridges, had given

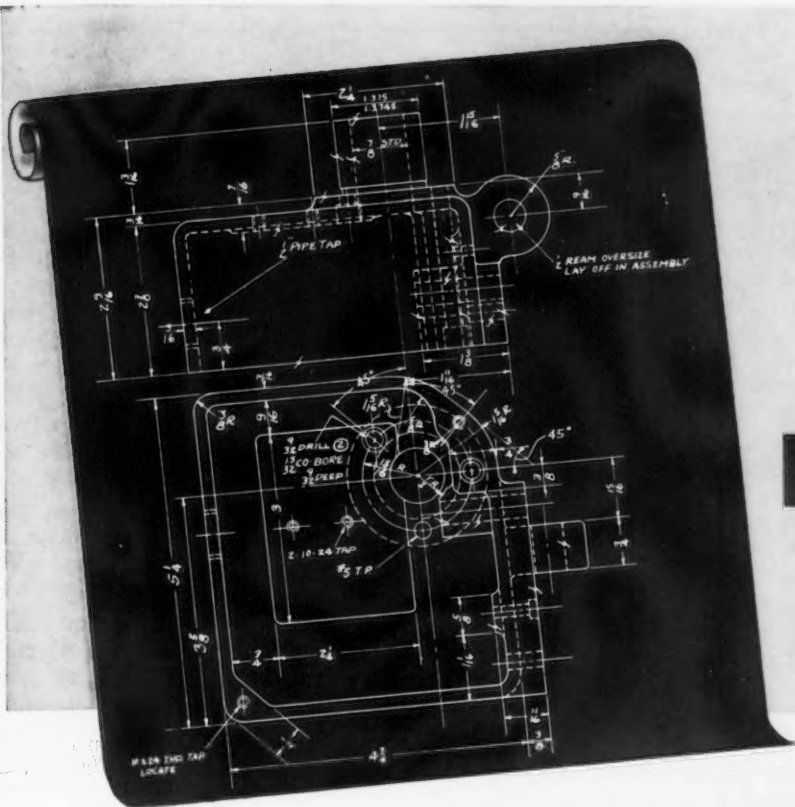
notice of a strike Apr. 1, but at the last minute postponement was made at the request of Edgar L. Warren, director of the U. S. Conciliation Service. The ILWU is demanding a wage increase from \$1.15 to \$1.50 an hr retroactive to last Oct. 1. Employers have offered \$1.33 an hr without retroactive provisions. While taking steps to delay the strike until the government can formulate plans for establishing a fact-finding board, Mr. Bridges expressed doubt that the differences between the union and the Waterfront Employers' Assn. "can be settled unless we strike."

DEMANDS for wage increases by the longshoremen come just as the U. S. Maritime Commission and War Shipping Administration are seeking the re-examination of competitive intercoastal rail and water rates by the Interstate Commerce Commission.

Last December the WSA resumed intercoastal shipping and after four months of operation contends that an increase in rates is essential if domestic water carriers are to operate at a profit under peacetime conditions. Intercoastal operators have long objected to the differential between rail and water rates. The petition for a review of rates states that even before the war, shipping companies were withdrawing from the business as opportunity was afforded for disposal of their vessels, and attributes this situation to depressed rail rates and "certain repressive practices adopted from time to time by the railroads to meet water competition."

Industrialists are watching developments in this campaign very closely as more finished products from the West will be shipped East than heretofore, and shipping costs will materially affect the competitive position of local merchandise.

Full impact of reconversion and labor trouble on industrial activity in the State of California is made apparent by employment figures released by the State Dept. of Industrial Relations. Factory employment in California manufacturing industries dropped from 400,500 in January to 383,700 in Feb-



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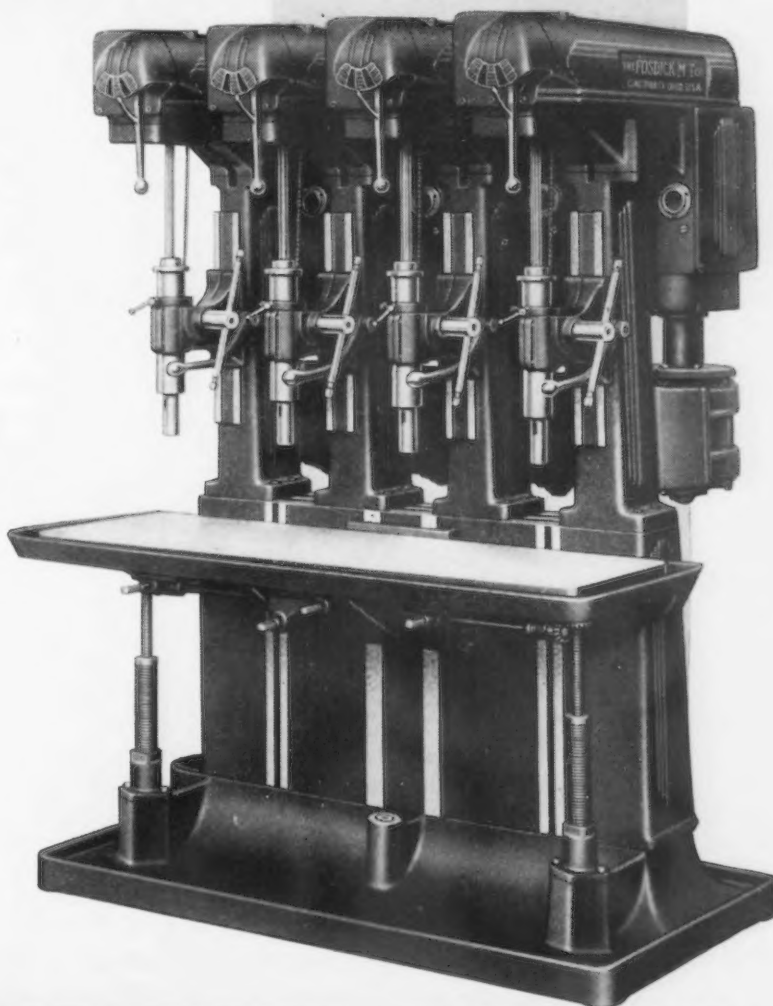
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ruary of this year. The latter figure can be compared to the February 1945 employment figure of 746,400.

In the San Francisco area industrial employment dropped from 83,300 in January to 80,500 in February 1946 which can be compared to the February 1945 employment figure of 229,000. In the Los Angeles area industrial employment dropped from 228,000 in January to 219,100 in February 1946 which can be compared to the February 1945 employment figure of 382,600.

With the exception of the food processing industries in which employment declined and the petroleum products and miscellaneous manufacturing industries in which the number of wage earners remained relatively stable, every industry group in the nondurable goods division added employees between January and February. The drop in canning employment, however, more than offsets gains in other groups so that the factory employment in nondurable goods industries as a whole decreased slightly to 177,300 in February from 177,700 the previous month. In February 1945, 190,600 wage earners were engaged in manufacturing nondurable goods.

Aircraft plants in the state employed 50,700 wage earners in February and the January total was 51,300. A year ago 161,000 factory workers were employed in the aircraft industry.

Employment in the shipbuilding industry remained depressed because of the machinists' strike in the San Francisco Bay Region. The number of production workers in the industry excluding government yards decreased to 30,700 in February from 34,100 in January and in February a year ago this industry employed 208,800.

IN PREPARATION for just such a postwar slump in employment as is indicated by these figures, the San Francisco Chamber of Commerce began 2 yr ago to prepare a survey of the industrial possibilities of not only its own immediate area, but the 11 surrounding counties as well. Released last week, the 38-p., three-color brochure carries 15 charts, 11 maps, 13 tables and over a hundred photographic illustrations assembled to convince industrialists that this area affords many advantages of geography, transportation, raw materials, mar-

kets, labor, sites, power, water, capital and credit. It is pointed out that already there are 4500 diversified factories in the 12-county area.

"This survey is the most effective answer to those who have not realized how far the Bay Region has shot ahead of the rest of the country," said Alfred H. Meyer, chairman of the Chamber's industrial committee.

Produced under the direction of G. L. Fox, manager of the industrial dept. of the Chamber, all departments contributed facts and figures on which the study was based. Copies are being distributed to prospective new industries.

The industrial dept. of the Chamber has just released a report which shows that more than \$10,300,000 has been reported for investment in northern California industrial developments representing 63 new plants and 51 expansions during the month of February.

Anticipating increased industrial development activity, Brayton Wilbur, president of the Chamber, has appointed a special committee to handle this work. Edward Rambo Browne, president of Otis & Browne, has been named chairman.

Atlas Imperial Diesel Engine Co. of Oakland, Calif., has just announced its acquisition of the entire capital stock of the Modern Can Machinery Co. of Chicago and will begin immediately to produce can making equipment. It is reported that the stock purchase included patents, patterns and drawings for the production of a full line of sanitary can making machinery. Ed Laxo, former president of the Modern Can Machinery Co. has been retained by Atlas. It was stated by one of the company officials that after production of the machinery is well under way, consideration will be given to the manufacture of cans.

Already carrying a large backlog of orders for its diesel engines which was built up during the protracted machinists' strike, Atlas is attempting to build up its payroll to the point where three-shift operation will be possible.

It is reported that Joshua Hendy Iron Works near Sunnyvale, Calif., has offered \$565,500 cash for the assets of the facilities at its plant put in during the war by the U. S. Maritime Commission. It was further agreed that the company would assume the Commission's lia-

bilities at the plant and pay a \$2,925,000 mortgage held by the commission. Sale is subject to approval of the War Assets Administration.

LOS ANGELES — This, the fourth largest city in the United States according to the special count made by the Federal Census Bureau, is looking for unprecedented industrial activity with the settlement of the motors strike.

General Motors South Gate plant is back into production according to H. L. Clark, plant manager and the first Chevrolet truck was expected off the line this week with Buicks and other models soon to follow.

Ford's Long Beach plant has 1400 employees at work on assembly and it is anticipated that production will soon reach 100 passenger cars and trucks per day. Top production is expected to reach 300 units per day. Some convertible models will also be produced at this plant but the Mercury and Lincoln will be shipped here from the East although some of the former may be assembled in the Richmond, Calif. plant, it is reported.

Fruehauf Trailer Co. of California is erecting a new building at its Vernon plant which will bring the company's total floor space at the local factory under roof to 176,000 sq ft. Employment will increase with the new extension from the present 545 to more than 800.

North American Aviation Inc., has given approximately 2500 of its professional supervisors, office and technical workers a wage increase of 15 pct retroactive to Jan. 15. The company is reported as negotiating with the CIO-UAW for a new contract covering 3000 employees in the production and maintenance classifications.

North American has just announced that it is entering the personal airplane field with the "Navion," an all-metal, four-passenger airplane to sell for \$6100, flyaway Los Angeles. This plane, designed to attract pleasure, sport and business fliers, is a low wing, side-by-side dual control ship, powered by an air-cooled Continental 185 hp engine. It has an estimated cruising speed of about 150 mph, top speed of about 160 mph and an estimated range of 700 miles. Right front and rear seats are removable to provide space for approximately 500 lb of luggage or equipment.

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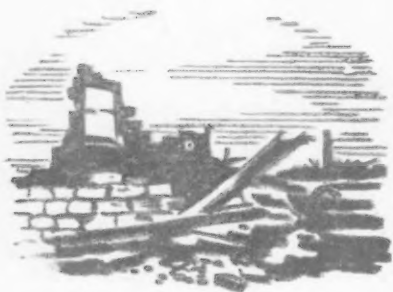
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• Internal strife complicates work of military government staff . . . Washington economists mistrust industry experts on the same committees.



BERLIN — There is an acute ideological conflict within the structure of the American military government economic division here that is reminiscent of the struggle that is paralyzing French industrial reconstruction at the present. When I made my first "get-acquainted" calls on the French authorities and industrial leaders in Paris weeks ago, I quite innocently thanked the fates that no such internal bitterness was affecting American postwar work.

What I have learned in Berlin on this and my previous trip, about the operation of the policy making groups for the future of Germany gives me a more realistic outlook on the American system. The struggle in France is between the old line industrial leaders, as exemplified by the men who headed the *Comite des Forges* for the steel industry, and the younger leaders of the present provisional government.

Without always making direct accusations of collaborationist activity, the industrial leaders of the prewar period are in the minds of many Frenchmen subconsciously connected with the defeat at arms. In the minds particularly of the resistance elements powerful in the existing government, these industrialists are capable of making policy neither for French nor German industry. The cumulative experi-

ence in production and engineering of all of French industry is centered in these same men.

The existing situation is that the government is leaving the industrialists in charge on a strictly conditional basis. They also are representing France in the sub-committees of the four power discussions here in Berlin on the future of Germany. They might quite possibly be replaced, as they are mistrusted by elements of their own government, if there were industrial experience available to draw upon elsewhere.

There are many strictly analogous factors affecting the operation of our own staff here today. When I was in Berlin a month ago I noted first hints of the bitterness that exists between the groups of industry and government experts that are shaping our share of the future of Germany. One segment of the battle has already been fanned to fever heat by bitter attacks on industrialists that are working here who are accused of the basest motives.

Another facet of the fundamental struggle has been pointed up in Washington by the press statements of two recently departed members of the decartelization group. These accusations in the form of strictly on-the-record top blowing to the assembled press, state that the entire program of breaking up the tightly knitted German cartels is being thwarted by elements within our own military government staff here.

Now the basic fact that the industry representatives here on various subcommittees for economic policy may differ widely with New Dealish government economists is certainly unavoidable. The unfortunate part of the affair is that if the Germans, and our allies, are to have any sort of respect for our intentions and methods, there should be among all of our representatives a deep conviction on the part of everyone that though ideologies may be different there is in all a basic professional integrity that must be respected.

It would embarrass me to have to swear in court that any such

respect of the other guy's honesty of purpose exists in our staff in Berlin today. It would seem advisable that following the original accusations in regard to the sabotage of the decartelization program there would have been some internal agreement reached, or someone would have been fired. Instead, Berlin is rife with the same stories, and at least two more press attacks are in preparation on the same subject, one to come from the Washington battleground, and one from here.

The fine art of decartelization is one learned in the modern world principally under the tutelage of that dean of the Sherman Act suit, Thurman Arnold. Many of his most apt scholars have been associated with the program here. One of Arnold's former assistants is in charge of the division, and he would be recruiting a bigger staff from Washington if he could persuade them that the newspaper stories aren't true, and that their personal reputations would not be sacrificed by assisting on this job.

If the stories that are now in the works find their way into the corridors of the Justice Dept. they won't be able to get an ambitious young trust-buster to touch a Berlin job with a brief case.

Although it has received less notoriety to date the other half of the struggle which is rocking the Office of Military Government for Germany (U.S.) (OMGUS is the official hieroglyph) starts within the level of industry subcommittee of the economics division. In the process of drawing up the programs for all of German industry there has been much exchanging of plans between this group and the heads of the chemical, food and agriculture, metals and minerals, and other staffs.

The basic question of the standard of living that is to be permitted for postwar Germany (and thus indirectly for all of Western Europe) and the level of permitted operation of all branches of industry are the prime concern of the level of industry experts. This is economic planning of the highest order and is being directed by govern-



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Keeps Engines Running Twice As Long Before Bearings Are Scraped and Refitted

Two big Diesels in a well-known plant were being shut down periodically for cleaning of carbon, and for scraping and refitting bearings.

When a Sun Engineer recommended a Sun Diesel Lubricant, specially refined for that particular type of operation, the Diesels subsequently were able to run twice as long between shutdowns.

The Engineer in charge now reports that the oil stands up and retains its clean appearance during operation. Heavy carbon deposits are no longer a problem.

This case, from the Sun industrial files, is typical of the ways in which Sun products contribute to higher production at lower cost.

In turbines, steam engines, gas, gasoline, or Diesel engines . . . in all types of modern machinery . . . specialized Sun products mean continuous operation for longer periods.

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SUN
—**SUNOCO**—

**INDUSTRIAL
PRODUCTS**

ment economists also of the New Deal graduate school.

Just as the industry experts have been drawn from the ranks of industry, it is quite logical that the planners should have been chosen from the government staffs. The unfortunate situation at the present is that certain members of the level of industry committee are convinced that the motives of the industrial experts here are properly suspect.

The current opinion among the planners is that their function is to so thoroughly scramble the plans for specific industries as they are presented by the individual committees that all of the vicious schemes cooked up by the "soft-peace" advocates who "helped to rebuild Germany after the first World War, and are trying to get away with the same thing again" will be quashed.

Meanwhile, the policies which are being drawn up by the committees in question are shrouded in a veil of secrecy roughly comparable with that used before the Normandy invasion. The announcement of the policies finally decided upon, and their application in the years of occupation can be the only sure method of deciding the merits of the present struggle.

At present, and as long as the issues involved are still under discussion among the four powers General Clay refuses to tell anyone where we stand or which side we are on. This policy of secrecy seems not only to be a hangover from wartime policies but also the embodiment of years-old ideas of secret diplomacy that anything being discussed and therefore unsettled is taboo.

The product of this continuing bickering and strife is to be a set of broad flexible policies, strictly limiting Germany's war making capacity, but providing the country with an economy capable of avoiding troublemaking through instability.

The characters in the current struggle feel that they have the answer, and are now recruiting volunteers from the U. S. to come over and sweat out the occupation period applying the policies. The preliminary bout of policy making is almost completed, and volunteers to come into the ring for a good public beating applying these policies are requested to form a line on the right.

Travel Disadvantage

Paris

• • • An important number of Belgian and Luxemburg workers used to travel every day to work in the French factories and mines situated in the frontier district. Owing to the new exchange rate, a miner from Luxemburg working in France is now earning 40 pct less than he would earn in Luxemburg. The position will no doubt become more serious as wages in Luxemburg will go up. The departments of the Ministry of Labor have been considering the matter; it is intended either to give the frontier district workers a compensation allowance or to fix a more favorable rate of exchange for them, but so far nothing definite has been decided.

France Discovers Wage Rises to Coal Miners Help Increase Output

Paris

• • • French coal production in January exceeded the prewar tonnage for the first time, amounting to 3,970,000 tons, compared with 3,515,000 tons in December 1945, and 3,964,000 tons' monthly average in 1938.

Output per man-shift went up from 902 kg to 905 kg. The number of underground workers went up from 203,199 in December to 208,403 in January, while that of surface workers increased from 100,978 to 103,710. Imports of coal into France are still below the prewar level; they went up to 881,575 tons in January, compared with 779,800 in December and a monthly average of 1,842,000 tons in 1938.

A committee has been set up under the chairmanship of M. Duguet, secretary-general of the National Federation of Underground Workers (Miners' Union), to inquire into the modernization of the coal mines.

Miners' wages have gone up 200 pct since the liberation; wages for surface workers are now 112 pct and those for underground workers 132 pct of laborers' wages. Young miners qualify for adult wage rates at the age of 18 instead of at 21. With regard to women, the principle "equal pay

for equal jobs" has become a fact. Pensions have gone up from 13,500 francs (approximately \$112) per yr in 1944 to 24,000 francs (approximately \$200), and an increase to 36,000 francs (approximately \$300) is under discussion.

All these measures put the miners in a privileged position and partly account for the rather rapid progress of production during the last few months. French authorities hope that in March a monthly output figure of 4 million tons will be reached. Estimated total of prisoners working in the mines at the end of March is 50,000. It is also intended to obtain Italian labor to replace German prisoners when these will be allowed to go back to Germany.

The appended table shows the actual imports from the important countries during 1945 and estimates for 1946:

	Imports 1945 Millions of tons	Import program 1946 Millions of tons
U. S. A.	1.66	6.00
Great Britain..	2.00	0.96
Germany	1.26	4.30
	4.92	11.76

This shows that France, in order to improve the coal supply position in 1946, intends to fall back mainly on coal from Germany and the United States.

The quantity of coal which can be allocated to the iron and steel industry during the next few months was to be raised to 500,000 tons, but the realization of the plan will depend on the possibility of importing coke breeze and coke from the Ruhr and from Great Britain, and it is not certain that it will be possible to carry out the program.

The following table indicates, by main industries and services, the present allocation of coal in France.

Allocation of Coal in France (in thousands of tons)			
	Monthly average 1938	Allo- cated in Jan.	Allo- cated in Feb.
Mines and subsidiaries ..	570	1,050	750
Power and heating ..	694	1,025	945
Transport	960	843	760
Iron and steel	840	320	323
Building materials ...	239	70	100
Textile and leather ..	257	112	140
Engineering	220	65	85
Miscellaneous	1,800	1,202	1,250
	5,580	4,687	4,353

January figures appear to be very high, but these allocations were intended to replenish stocks and make good the delay in de-
(CONTINUED ON PAGE 130)

America's Best Known Stainless Electrodes

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is well informed
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has stock.

MIDDLE ATLANTIC
Buffalo, N. Y.
Root, Neal & Co.
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Bost. Welding Co.
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Williams & Co., Inc.
Rochester, N. Y.
Welding Supply Co.
Syracuse, N. Y.
Welding Supply Co.

SOUTH and SOUTHWEST
Baton Rouge 17, La.
Louisiana Welding Co.
Borger, Texas
Hart Industrial Supply Co.
Houston, Texas
Champion Rivet Co.
of Texas

Kingsport, Tenn.
Slip-Not Belting Corp.
Knoxville, Tenn.
Slip-Not Belting Corp.
New Orleans, La.
The Gulf Welding
Equip. Co.

Oklahoma City, Okla.
Hart Industrial Supply Co.
Pampa, Texas
Hart Industrial Supply Co.
Phoenix, Arizona
Arizona Welding Co.
Tucson, Arizona
Arizona Welding Co.
Tulsa, Oklahoma
Hart Industrial Supply Co.

MIDDLE WEST
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Industrial Supply Co.
Chicago, Ill.
Machinery & Welder Corp.
Cincinnati, Ohio
Williams & Co., Inc.
Cleveland, Ohio
Williams & Co., Inc.
Columbus, Ohio
Williams & Co., Inc.
Detroit, Michigan
C. E. Philips & Co., Inc.
St. Wayne, Ind.
Wayne Welding Sup.
Co., Inc.

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Welders Supply &
Repair Co.
Milwaukee, Wis.
Mach. & Welder Corp.
Moline, Ill.
Mach. & Welder Corp.
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Wichita, Kansas
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WEST COAST
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Victor Equipment Co.
Palo Alto, Calif.
Victor Equipment Co.
Los Angeles, Calif.
Victor Equipment Co.
Portland, Ore.
J. E. Hazeltine & Co.
San Diego, Calif.
Victor Equipment Co.
San Francisco, Calif.
Victor Equipment Co.
Seattle, Wash.
J. E. Hazeltine & Co.
Spokane, Wash.
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Tacoma, Wash.
J. E. Hazeltine & Co.

FOREIGN
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Hawaiian Gas Prod., Ltd.
Monterrey, N. L. Mex.
Electrodes Monterrey
S.A.
Montreal, Canada
G. D. Peters & Co.
of Can., Ltd.
Chile, Bolivia, Peru
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STAINLEND K
AC-DC

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The Chromend trade-name designates one of our lime-type coatings; suitable for DC reverse polarity welding only. The finest all-position electrode. Available in 20 chrome-nickel analyses and 8 straight chrome analyses in sizes ranging from $\frac{3}{64}$ -inch to $\frac{1}{4}$ -inch inclusive.

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The Stainlend trade-name designates one of our titania-type coatings; suitable for AC or DC (reverse polarity) welding. The best stainless AC alloy electrodes. Available in 6 of the most popular chrome-nickel analyses in sizes ranging from $\frac{3}{64}$ -inch to $\frac{1}{4}$ -inch inclusive.

The reputation of Arcos Chromend (DC) or Stainlend (AC-DC) electrodes has been built on fifteen years of specialization on our part, and fifteen years of satisfactory performance on the part of our products in industry.



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PERSONALS

• • •

• **Gen. Brehon B. Somervell**, commander of the Army service forces during the war, has been elected president of Koppers Co., Pittsburgh, and will assume his new duties about May 1. **J. P. Williams, Jr.** has been both chairman of the board and president of Koppers since the death of J. T. Tierney in 1944, and will retain his position as chairman of the board and chief executive officer.

• **Roger F. Mather** has been appointed chief metallurgist of Kaiser-Frazer Corp. and Graham-Paige Motors, Willow Run, Mich. He was formerly chief metallurgist at Willys-Overland Motors.

• **Charles Gross** has joined Aeronautical Products, Inc., Washington Court House, Ohio, as vice-president in charge of sales. He was formerly general manager of the Auto Railer Div. of Evans Products Co., Detroit, and more recently general sales and advertising manager of the Murchey Machine & Tool Co. of Detroit. **Edward Jonke** has been named assistant to the president.

• **Frank Weir** has been appointed district sales manager of the Harbison-Walker Refractories Co. in St. Louis, and **Karl W. Sieling** has been appointed district sales manager of the Houston office.

• **Charles D. Moore** has been appointed general manager of the Cordol Corp. of Plymouth Meeting, Pa. Mr. Moore was formerly associated for 16 yr with the Worth Steel Co. as superintendent of the openhearth. Previous to that he was assistant superintendent of the openhearth at the Franklin plant of Bethlehem Steel Co.

• **Clarence A. Norris** has been appointed chief chemist of the Eaton Mfg. Co.'s Stamping Div. at Cleveland. He will be in charge of the plating dept. Before joining the Eaton organization, Mr. Norris was connected with the U. S. Rubber Co.'s development laboratory in Detroit.

• **Leland E. Householder** has been appointed chief metallurgist of the Grand Rapids, Mich., extrusion plant recently acquired by the Reynolds Metals Co. Mr. Householder has been with Reynolds in Louisville since 1941, as plant metallurgist, research metallurgist and assistant to chief metallurgist. He was formerly employed by the American Sheet & Tin Plate Co.

• **William M. Hillborn** has been appointed executive vice-president and director of Cribben & Sexton Co., Chicago. For the past 20 yr Mr. Hillborn has been associated with Sears, Roebuck & Co., successively serving as operating manager, head of the purchasing dept., and personal executive assistant to the chairman of the board.

• **Walter L. Longnecker** has been appointed division superintendent of the rod mills in the Cuyahoga works of American Steel & Wire Co., Cleveland.

• **R. H. Porterfield** has been appointed manager of a new branch office of the Allis-Chalmers Mfg. Co., Milwaukee, in the New England district at Providence. Mr. Porterfield has been with Allis-Chalmers since 1939. **R. E. Scudder** has been assigned to the new branch as salesman. He joined Allis-Chalmers in August 1945, upon his release from the Navy.

• **Ralph H. Lightner** has been named general sales manager of the Titan Metal Mfg. Co., Bellefonte, Pa. Mr. Lightner succeeds **J. B. Craig**, vice-president, who has been appointed controller.

• **Paul Abel**, formerly assistant chief engineer of the Yoder Co., Cleveland, has been appointed chief engineer. Mr. Abel started with the Yoder Co. in 1934. In his new position he succeeds **G. E. Kentis**, resigned.

• **E. P. Querl**, manager industrial development dept. of the Chicago Assn. of Commerce, has been elected chairman of the board of the American Industrial Development Council, a professional society of industrial development executives of chambers of commerce, railroads, utility companies and engineering firms.

• **R. A. Williams** has been elected a director of American Car & Foundry Co., New York, to succeed **W. L. Stancliffe** who recently resigned from that post. Mr. Williams has been vice-president of sales for the company since December 1943. He is also executive vice-president and a director of American Car & Foundry Export Co., having direct supervision of sales, subsidiary companies, and foreign representatives.

• **Dwight Adams** has been appointed head of the Pittsburgh Steel Foundry Corp.'s Philadelphia office. He was formerly with the Heppenstall Co., Pittsburgh, and was associated with the Philadelphia office of that company for 11 yr. Mr. Adams will represent both the Pittsburgh Steel Foundry Corp. and the Fort Pitt Castings Div. of that company.

• **Dewey Williams** has been named sales manager of the Gordon Lubricating Co., Pittsburgh. He was formerly chief lubricating and combustion engineer for the Pittsburgh, Charleston and Buffalo area for Cities Service Oil Co.

• **Howard O. Pihl** has been elected secretary-treasurer of the Louis Allis Co., Milwaukee, to succeed his father, **Oscar F. Pihl**, who has retired after 40 yr of service with the firm, and will remain on the board of directors. Other changes at Louis Allis are: **Paul M. Haack**, assistant secretary-treasurer; **Louis Allis, Jr.**, sales manager, and also elected to board of directors; **E. J. Taylor**, assistant sales manager; **Frank O. Kovich**, works manager; and **Roy Schneider**, superintendent.

• **Andrew Jollie**, after 50 yr service with the British iron and steel industry, has retired from the chairmanship of the National Assn. for Rolled and Rerolled Steel Products, London. Mr. Jollie, who is chairman of Steel, Peech & Tozer, a Yorkshire steel company, is also a director of the United Steel Companies, Ltd., and was for a time chairman of the National Billet Associations. He is being succeeded as chairman of the National Assn. for Rolled and Rerolled Steel Products by **G. H. Latham**, chairman of Whitehead Iron & Steel Co., Ltd., Newport, Monmouthshire.



CHARLES E. WILSON, president, Worthington-Gamon Meter Co.

• **Charles E. Wilson**, vice-president of Worthington Pump & Machinery Corp., Harrison, N. J., has been elected president of the Worthington-Gamon Meter Co., of Newark, N. J., a subsidiary. **C. A. Packard** has been elected vice-president and comptroller.

• **Howard N. Williams** has been appointed sales promotion manager of Pemco Corp., Baltimore. During the war he was associated with the Navy Dept. as a field engineer and the Glenn L. Martin Co. as chief of their instrument laboratory. He succeeds **William B. Rose** who has accepted a position with a Baltimore advertising agency.

• **R. M. Coburn** has been appointed sales manager of Panoramic Radio Corp., New York. He was formerly general sales manager of National Union Radio Corp.

• **Samuel D. Conant** has been appointed district sales representative for upper New York state for Putnam Tool Co., Detroit. He will make his headquarters at Rochester. Mr. Conant has been associated with the Greenfield Tap & Die Corp. continuously since 1936, with the exception of 2 yr leave of absence from the company with the WPB, cutting tool section, Tools Div.

• **R. Newman Clarke** has been elected vice-president and secretary of the Charles Schott Machine Co., Milwaukee, and **H. T. Kennedy**, vice-president.

• **James S. Allen**, president of the Walker Mfg. Co., Racine, Wis., has been elected president of the Racine Manufacturers Assn.

• **George T. Walne** has been promoted to the position of manager of the central district sales territory of General Box Co., Chicago. Starting with General Box Co.'s New Orleans division 19 yr ago, Mr. Walne has since served in their New York, New England and Central divisions. For the past few years, he has been located in Chicago.

• **Don Campbell** has been appointed to the public relations staff of the American Locomotive Co., New York. Prior to joining the Navy, Mr. Campbell was copy desk chief of the Miami Herald.

• **Walter S. Quinlan**, president and treasurer of Robbins & Myers, Inc., Springfield, Mass., has been made a director of the American Bosch Co. to succeed **John P. Maguire**, New York commercial banker.

• **O'Roland Read** has been appointed to the new post of director of sales for Speedways Conveyors, Inc., of Buffalo. He formerly was associated with American Type Founders, Inc., at Newark, N. J., and also served as vice-president in charge of sales of the Read Machinery Co. of York, Pa.

• **Frank J. Kohut** has been elevated from sales-engineering supervisor to the post of sales manager at the C. M. Kemp Mfg. Co., Baltimore. Mr. Kohut first joined the Kemp organization six months ago.

• **Robert Leggat-Weir** has been appointed assistant sales manager and **Preston W. Wolf** has been appointed assistant sales promotion manager of the General Detroit Corp., Detroit. Mr. Leggat-Weir joined the firm 2 yr ago as assistant to the general manager, Extinguisher Div., and Mr. Wolf joined in March 1945 after his discharge from military service.



E. C. BULLARD, president, Bullard Co.

• **E. C. Bullard**, formerly vice-president and general manager of the Bullard Co., Bridgeport, Conn., has been elevated to the presidency of the company succeeding **E. P. Bullard** who has retired to become chairman of the board. The new president still retains the title of general manager. **E. P. Bullard, III**, retains his title of vice-president and becomes assistant general manager. **G. L. Todd**, formerly comptroller, retains this title and becomes a vice-president.

• **R. H. Davies** has been appointed consulting engineer in charge of the educational work of the Lincoln Electric Co. of Cleveland. For the past 2½ yr he has been the Lincoln representative in Washington, where he did consulting engineering work with the Army, Navy and other government agencies.

• **James Gerity, Jr.** has been elected chairman of the board of Gerity-Michigan Die Casting Co., Detroit, with **Louis W. Blauman** being elected president; **E. Martin Tallberg**, **William N. Schnell**, and **Charles Shanks**, vice-presidents; **James T. Bolan**, secretary; and **M. K. Layer**, treasurer.

• **Harold L. Adamson** has been named factory representative in the San Francisco area of the Wales-Strippit Corp., N. Tona-wanda, N. Y.

- **J. A. Wagner**, formerly vice-president of engineering and sales of the Advance Tool & Die Co., has been elected vice-president and manager of Sommer & Adams Co., Cleveland subsidiary of the Federal Machine & Welder Co.
- **E. S. Goodwin** has been named purchasing agent for the Westinghouse Electric Corp.'s new Buffalo plant. He has been with Westinghouse since 1935 and has worked in purchasing depts. in Philadelphia and East Pittsburgh.
- **W. K. Lomason** has been elected vice-president and treasurer and **T. S. Hough**, vice-president of the Douglas & Lomason Co., Detroit. Both had previously been directors of the company, and Mr. Lomason had also served as treasurer.
- **William Yoxall**, first superintendent of the Western Brass Mills at East Alton, Ill., has retired as technical assistant to Marshall W. Acker, director.
- **Alvin L. Krieg** has joined the public relations dept. of American Steel & Wire Co., Cleveland.
- **William E. Thomas** has been made division sales manager in charge of valve sales in the southeastern states territory by Homestead Valve Mfg. Co. with his headquarters in Atlanta. He was formerly southeastern division manager of the Chicago Metal Hose Co.
- **H. A. Van Hala** has been appointed district manager of the Cleveland branch office of the Bristol Co., being transferred from the Birmingham branch office where he has been district manager since 1935.
- **Charles Webber** has been appointed managing director of the Bristol Co. of Canada, Ltd., and will be in complete charge of the Canadian factory at Toronto. He was formerly New York district manager of the Bristol Co., and prior to that, was attached to the Bristol Co. at Waterbury, Conn.
- **Alexander J. Cassatt**, vice-president of the Western Saving Fund, has been elected to the board of directors of the Pennsylvania Salt Mfg. Co., Philadelphia.
- **Sam L. Brous** has been named manager of sales development for B. F. Goodrich Chemical Co., Cleveland. He has been with the Goodrich organization since 1929 and will be responsible for the commercial introduction of new chemical and plastic products, supervising field development work and directing the exploratory sales of these products to new markets. **James C. Richards** has been promoted to sales manager of synthetic and reclaimed rubber for the Goodrich Chemical company. He has been manager of the government synthetic rubber plant at Borger, Tex., operated by the company.
- **B. I. Hines** has been named assistant branch manager of the Ford Motor Co. in Buffalo, succeeding **Llewellyn W. Smead**, who will head the business management dept. in Dearborn, Mich. Mr. Hines formerly was sales manager of the Pittsburgh division.
- **Col. John S. Pfeil**, who before the war was manager of General Motor's Frigidaire Div. and who for many years was associated with that company in various capacities, has been made a vice-president of Stone & Webster, Inc., with headquarters in Boston.
- **B. F. Valliere** has been made vice-president in charge of operations of the F. W. Sickles Co., Chicopee, Mass., a subsidiary of the General Instrument Corp.
- **R. J. Swing** has been appointed general sales manager of the Bunell Machine & Tool Co., Cleveland.
- **Joseph F. Libsch** has joined Lepel High Frequency Laboratories, Inc., New York, as a consulting metallurgist.
- **J. E. Brickenden** has been named district sales manager and **E. J. Mack**, commercial cooking equipment specialist for the Cleveland district, Edison General Electric (Hotpoint) Appliance Co., Chicago. Mr. Mack was formerly with the Cleveland Illuminating Co.

...OBITUARY...

- **John C. Stewart**, president of Charles Stewart & Son, Inc., Worcester, Mass., died recently.
- **Brent Wiley**, formerly managing director of the Assn. of Iron & Steel Engineers, died at Sarasota, Fla., on Mar. 19. Mr. Wiley worked for Carnegie-Illinois Steel Corp. at the Ohio and Homestead works, Wellman-Seaver-Morgan Co., and Westinghouse Electric & Mfg. Co. In 1936 he joined the Assn. of Iron & Steel Engineers and served as managing director for 10 yr.
- **N. C. Hilton**, executive manager of the abrasive wheel, diamond wheel and bowling ball depts. of Raybestos-Manhattan, Inc., Manhattan Rubber Div., Passaic, N. J., died Mar. 14. He had been with Manhattan Rubber for more than 30 yr.
- **Clayton A. Nenno**, 58, former executive vice-president of the J. M. and L. A. Osborn Co. of Cleveland, died Mar. 18 at Miami Beach, Fla. He was associated with the Republic Metalware Co. in Buffalo for many years, and organized the Nenno Metals Co., which he sold in 1925.
- **A. A. Keally**, 70, died Mar. 20 in Florida. He was one of the veterans of the steel industry, having joined Sharon Steel Co. as assistant to the president in 1910. In 1917 he came to Detroit for Sharon Steel, and retired some time ago as assistant to the vice-president.
- **Edward J. Finkbeiner**, 60, a vice-president of American Car & Foundry Co., New York, died suddenly on Mar. 23. He had been associated with the company for 42 yr.
- **Edwin R. Wegener**, former president and general manager of the Detroit Forging Co. and for the past decade a manufacturer's agent and buyer for Ford Motor Co., Dearborn, Mich., died recently.
- **Karl E. Barton**, 58, manager of the Goodyear Tire & Rubber Export Co.'s mechanical goods dept., died in Akron, Ohio, recently of a cerebral hemorrhage. He had been with the Goodyear organization 32 yr, beginning his career as assistant manager of the mechanical goods dept. for the Goodyear Tire & Rubber Co. of Canada.



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**use no floor space—
cause no traffic congestion**

can handle any load



In considering material handling methods and equipment, remember that an overhead crane doesn't need floor space—carries the load through the air where it can't cause traffic congestion—places it on the desired spot—accurately.

When floor space is at a premium, elimination of wide aisles may be important. A crane permits much better utilization of floor space. A Northern Crane, designed for maximum hook lift provides more usable headroom.

Northern Cranes are available to handle any type or weight of load.

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HOIST CRANES • HAND CRANES • ELECTRIC HOISTS
AIR HOISTS • SPECIAL CRANES AND HOISTS

Dear Editor:

CHROME-PLATED UTENSILS

Sir:

We are very much interested in your survey "What the Public Thinks" in the Annual Review number. This is indeed a mighty fine presentation, but in the section devoted to frying pans, etc., no mention is made of chrome-plated steel frying pans, baking utensils and pots. For over 10 yr we have been producing several million chrome-plated utensils annually and hence are somewhat disappointed that this type is not mentioned in the survey. Your comments on this will be appreciated.

W. B. LEBHERZ,
Vice President

Everedy Co.,
Frederick, Md.

● The Gallup organization that conducted the poll insisted that we keep the questions as simple as possible since the survey was to reach people of all educational levels. Too fine a gradation of types of material, they claimed, would only confuse the issue. Actually, when the survey was being developed, we had planned on including a question covering chrome-plated utensils, but then in view of point raised by the Gallup people, it was decided to drop it. Now, with all the virtues of hindsight, we feel as though such a question could well have been included to the benefit of the survey. We wish it had been.—Ed.

HIGH SPEED MOLDING

Sir:

Can you tell us more about the new high-speed molding machine mentioned in "Newsfront" of Feb. 12.

N. A. BIRCH
Metallurgist

American Brake Shoe Co.,
Mahwah, N. J.

● This machine, like your new electric toaster, is still under wraps. When the full details are finally released, we'll tell you all about it in THE IRON AGE.—Ed.

AUTOMATIC SCREW MACHINES

Sir:

We are enclosing 60¢ in stamps for which please send us a reprint entitled "Setup Charts for Automatic Screw Machines."

WALTER KRONICH

Perfection Screw Products Co.,
Chicago 12

ATOMIC BOMB SIDELIGHTS

Sir:

Please forward a reprint of the article that appeared in the Aug. 23 issue entitled "Atomic Bomb Sidelights." Enclosed is 10¢ for the cost of this reprint.

E. J. ASHTON
Research Dept.

Caterpillar Tractor Co.,
Peoria 8, Ill.

REVOLUTION COUNTERS

Sir:

As we are interested in selling American make revolution counters, particularly of hand type, we shall be glad if you will let us know the name and address of some American manufacturers who are making same.

S. H. WOO
Manager

United Manufacturers Electric Co.,
Shanghai, China

● Suggest that you write to the following companies: Veeder-Root, Inc., Sargeant St., Hartford, Conn.; Durant Mfg. Co., 1922 N. Buffum St., Milwaukee, Wis.; Standard Electric Time Co., Logan St., Springfield, Mass.; L. S. Starrett Co., 101 Crescent St., Boston, Mass.—Ed.

STEEL FOR WAR USE

Sir:

We are still engaged in renegotiation of some of our government contracts. It would be a considerable help to us if we could obtain an estimate of the output of the steel industry having a war end use for the period Aug. 1, 1944 through July 31, 1945.

W. S. TITUS,
Statistician

Taylor Instrument Companies,
Rochester, N. Y.

● No definite data have been compiled on this end use, largely for lack of an exact definition of what constitutes war end use. However, weighing all the factors, and being frankly liberal on some questionable decisions, our estimate for the period mentioned would be 75 pct to 80 pct of the total steel output. This figure would drop sharply after July 1945, due to great increase in cancellations around that time.—Ed.

TUNGSTEN BEARINGS

Sir:

We wish to inquire if you can advise how we can obtain further details on the subject of solid tungsten bearings, as mentioned in "Newsfront" in the Feb. 7 issue.

P. W. WENDT,
District Manager

A. W. Cadman Mfg. Co.,
Chicago

● Carboloy Co., Inc., 11155 E. Eight Mile Road, Detroit, can give you further details.—Ed.

PRECISION CASTING

Sir:

Please send us your booklet of nine articles on precision casting entitled "Precision Casting—Lost Wax Process," for which we enclose our check in the amount of 60¢.

R. V. JEFFREY
Purchasing Agent

Warman Steel Casting Co.,
Los Angeles 11

ASTE CONVENTION

Sir:

I refer to "Coming Events" in your magazine in which you list the ASTE Fifth Exposition. . . . The Netherlands Government is very much interested in having a representative visit this exposition. Therefore we would appreciate your sending us additional information as to the proper person to contact concerning this.

J. DE JONG,
Adviser, Metal Section

Economical, Financial and
Shipping Mission,
Kingdom of the Netherlands

● Mr. H. E. Conrad, secretary of the American Society of Tool Engineers, 1666 Penobscot Building, Detroit, will be glad to provide you with any information you may require concerning the show. Complete details of the technical program and the equipment exhibits at the show will be published in THE IRON AGE.—Ed.

CEMENTED CARBIDES

Sir:

Would appreciate very much your sending me tear sheets on "German vs. American Cemented Carbides" which appeared on pp. 64-68 of the Feb. 7 issue.

EMERY C. LAUCK
Assistant Plant Manager

Allegheny Ludlum Steel Corp.,
Brackenridge, Pa.

SCREEN WIRE MANUFACTURERS

Sir:

Our firm is interested in the manufacture of screen wire. Please inform us of manufacturers of screen wire machinery and equipment.

A. W. KLACHKO

American Iron Nipple Mfg. Co.,
Los Angeles 1

● We would refer you to the Mummert-Dixon Co. of Hanover, Pa., and Crompton & Knowles Loom Works, Worcester, Mass.—Ed.

DESCALING STEEL

Sir:

Will you kindly send us a tear sheet of the article "Sodium Hydride Process for Descaling Steel" as published in your Nov. 8, 1945 issue.

JOHN McCAUGHEY

Canopus Engineering Co., Reg.,
Montreal, P. Q.

AUTOMATIC SCREW MACHINES

Sir:

Please send us a reprint of "Setup Charts for Automatic Screw Machines." We are enclosing 60¢ in stamps to cover cost of same.

A. W. EHLERS,
Superintendent of Methods

McQuay-Norris Mfg. Co.,
Connersville, Ind.



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PROBLEM: Manufacturer of hydraulic pressure system pumps for 3000-psi service sought a hydraulic oil that (1) would resist oxidation at the 135° F. pump-operating temperature; (2) could be safely used for run-in test purposes; and (3) would have inherent rust-preventive qualities so it could be used as a "shipping" oil.

SOLUTION: When the Shell Lubrication Engineer studied the problem, he recommended a Shell Tellus Oil. The specifications of this oil satisfied the pump maker on points (1) and (2), but he was skeptical of

the rust-preventive qualities. A "storage" test was made, and, when Tellus-filled pumps were inspected, no sign of rusting was found. Convinced, the pump maker now uses Shell Tellus Oil exclusively.

CONCLUSION: It pays to consult the Shell Lubrication Engineer, regardless of the nature or size of your lubricating problem. Write for informative literature on Shell Hydraulic Oils. Shell Oil Company, Incorporated, 50 West 50th Street, New York 20, New York; or 100 Bush Street, San Francisco 6, California.

SHELL HYDRAULIC OILS



This Industrial Week . . .

- **Steel Industry Faces Its Worst Dilemma**
- **Coal Strike Forces Cut in Steel Output**
- **Machine Tool Scandal Rocks Cleveland**

WITH steel backlogs approaching record peacetime levels and with the industry ready to enter a period of production which will probably surpass any other yearly output except during wartimes, the industry this week faces its worst dilemma. The universal lack of knowledge as to how long the coal strike will last is the factor which will cause a small loss in steel production or a drastic curtailment from which it would take weeks to recover.

Many companies this week, in order to conserve fuel for the blast furnaces, are curtailing steelmaking operations. Others expect to hang on at present levels for at least two weeks. In the aggregate, however, steel production will probably drop sharply by the end of next week if there are no signs of a coal agreement.

If the strike is short-lived, the protective curtailment of steel output will represent an unnecessary loss in output. If the strike continues for four weeks or more with no signs of an agreement, the industry will face a sharp and drastic curtailment which would take the operating rate below 50 pct of capacity. Such a situation would be another blow to reconversion and to the forward movement of the heavy steel demand and production now existent.

This week the steel ingot rate is estimated at 87 pct of rated capacity, down 2½ points from last week, but a sharper drop is in prospect for next week. The more blast furnaces which are taken off in order to conserve fuel for the remaining ones, the longer it will take the industry to climb to prestrike levels of activity after the coal controversy has been settled.

THERE is no optimism among coal operators for a speedy settlement of the mine impasse. The two demands—a welfare fund supplied by the operators and controlled by the union, and the organization of supervisory forces—represent the hurdles for a rapid ending of the strike. They are also the points on which some of the old time bitterness between the two factions may be generated and thus make the job of the U. S. conciliator more difficult. Regardless of how soon the strike is settled, the ability of the steel industry to start whittling down its huge carryovers and get its house in order for a more normal distribution of steel products, has already been impaired and will be further adversely affected.

No tangible changes in the production and distribution picture are expected to result from the meeting between the Civilian Production Administration and the Steel Industry Advisory Committee held last week. The proposal that a steel pool be set up to take care of orphan tonnage was rejected because the mechanics of operation and determination of eligibility would make the operation of this plan impractical.

New personnel to be recruited from the steel in-

dustry by CPA will devote itself principally to unofficial attempts to secure production of critical inquiries and to handle liaison work with other governmental agencies rather than presaging a return to an old-time priority and allocation system.

Steel shipments during March were probably higher than in any month since the end of the war. This did not reduce backlogs, however, because towards the latter part of the month and extending into this week, new orders were somewhat ahead of shipments. Having suffered the penalty for not getting on steel mill books, long before the steel strike occurred, customers in the future will place as much tonnage as possible for shipment in order to be in line for their percentage of available supplies.

Four small nonintegrated sheet mills in the western Pennsylvania and Ohio Valley districts were attempting this week to solve their raw material supply problem. Negotiations are going forward to purchase the Lowellville, Ohio, plant of the Sharon Steel Corp. If the deal goes through the plant will be used to make sheet bars from which these companies will process flat-rolled sheets. The acquisition of this plant would about fill the semifinished steel needs of these four companies which make up about 50 pct of the independently-owned hand mill sheet capacity in the country.

The Wheeling Steel Corp., an integrated steel mill, is planning to expand its operations through the purchase of the Mingo plant of Carnegie-Illinois Steel Corp., Mingo Junction, Ohio. The works will not be operated immediately, but the company is making a study for the development of the properties.

WITH machine tool builders temporarily pessimistic over the immediate outlook for domestic machine tool orders, interest was focused this week on Cleveland where an expose of alleged graft and bribery in the disposal of government-owned machine tools through the local office of the War Assets Administration was on its way to a climax. Washington officials have an FBI report which is to be sent back to Cleveland shortly for grand jury consideration.

Included in this report will be the results of the investigation of charges that some surplus machine tools were sold before they were legally declared surplus; that some machines were declared scrap and sold at scrap prices when they were valuable and reappeared in the trade at normal used machine prices; and that some agency employees destroyed or lost priority records for desirable machines and sold them to buyers not entitled to them.

The steel industry has been advised that production directives will be issued for about 600,000 tons of products for export other than tinplate, for which a 155,000 ton program has already been established.

• **MORE OF THE PRICE BULGE**—Increased steel prices, growing out of wage boosts, are partly responsible for the increase of 10 pct in ceiling prices for steel shipping containers which OPA has granted, effective Mar. 26. OPA said its action was taken because plants producing containers were operating at a loss. The increase is in part due, OPA pointed out, to the fact that their expenses have increased substantially recently because of higher costs of materials and approved wage increases.

• **USWA LOSSES AGAIN**—Employees of the Hamilton plant of the American Rolling Mill Co. rejected the CIO as their bargaining agent in a recent National Labor Relations Board election by a majority of 130 votes. Labor Board officials announced that 280 employees voted against CIO representation while 150 voted in favor of accepting the union as their bargaining agent. This is the second time the CIO has failed to win approval of Hamilton Armco employees. In a previous election held here in September, 1944, the union was rejected by a substantial majority.

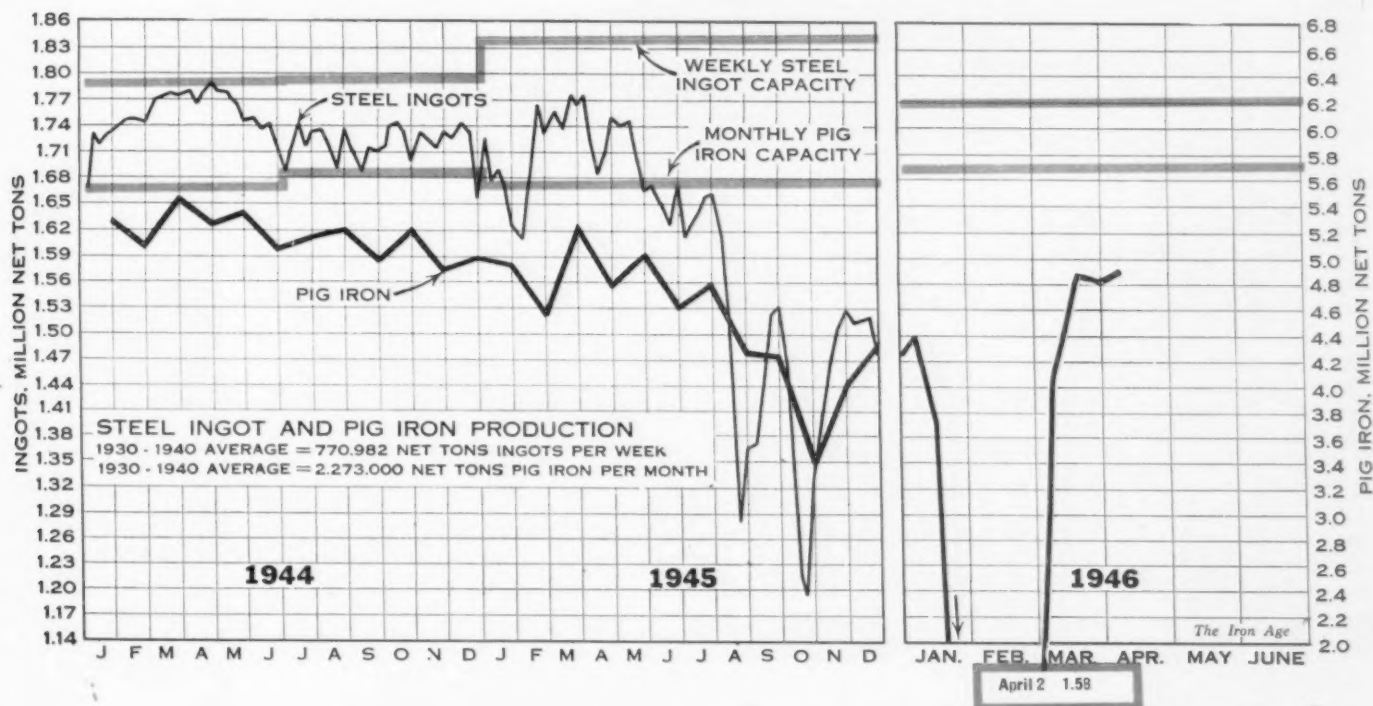
• **CAST IRON RADIATION OUTLOOK**—March production of cast iron radiation is expected to increase 15 to 18 pct over February to bring production for the first quarter of 1946 to a total of approximately 6 million sq ft, according to a CPA forecast. Anticipated production for the third month is about 2,267,000 sq ft. During January the production figure was 1,931,000 sq ft, rising to 1,952,000 sq ft in February. A monthly rate of 6 million sq ft is required to meet the needs of the 1946 housing program.

• **FARM MACHINERY STRIKES**—Continuation of work stoppages in plants of several of the largest farm machinery producers reduced February production to \$49,186,443 or about 20 pct under the January output of \$61,199,366, according to CPA.

• **IRON ROLL PRICES ADJUSTABLE**—Effective immediately, cast iron rolls may be sold by manufacturers at prices that may be adjusted later to higher ceilings approved later, OPA has announced. The adjustable pricing action may be applied beginning Mar. 27 until action is taken by OPA on a proposed industry-wide price increase which will be based on the results of a survey now underway. An agreement by the purchaser to the adjustable pricing arrangement is required.

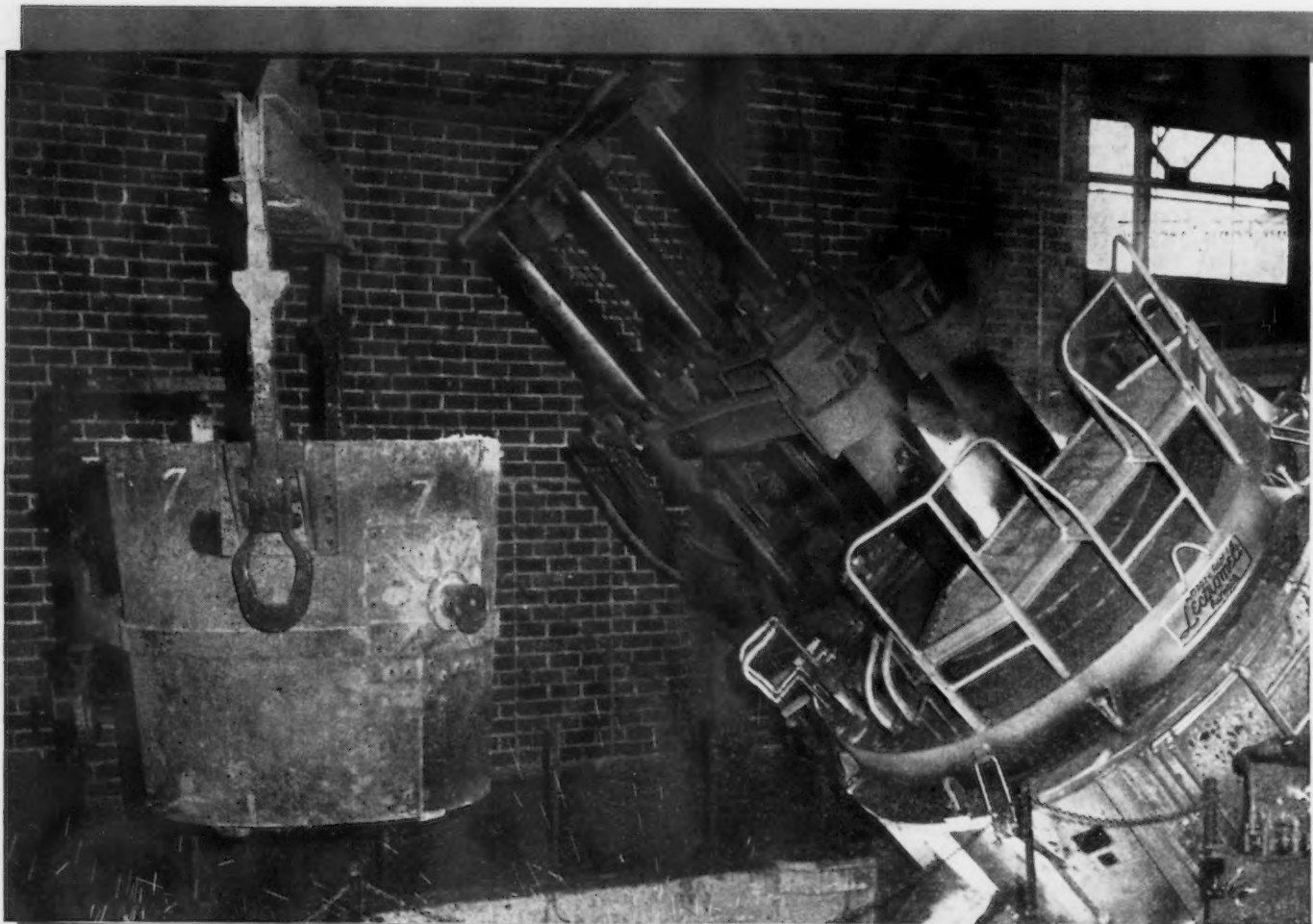
• **CANADIAN RAILS TO CHINA**—War Assets Corp. in Canada under an arrangement with the British Government, the Canadian Export Board and the United Nations Relief and Rehabilitation Administration will ship more than 14,000 steel rails to China. The rails which were rolled at the Sydney Works of Dominion Steel & Coal Co., were intended for British use and are of lighter weight than required under Canadian railway standards. China purchased the rails for \$741,600.

• **ORES FROM NORTH AFRICA**—Before the recent devaluation of the franc, the agreement concluded between the French and British Governments, covering the shipment of iron ore from North Africa to England, was extended up to Mar. 31, 1946, on the basis of 200 francs to £1 sterling. These terms were no longer in line with the cost price, and steps were taken to obtain a subsidy to the mines covering their cost and allowing them a fair margin of profit. The new rate of the franc appears to have changed the situation completely, and discussions are being held with the object of modifying the agreement concluded with Great Britain in accordance with the new rate of exchange. The French Government is envisaging the increased production of rolled products in North Africa, particularly in Algiers, where a rolling mill is already available. The possibilities of erecting a blast furnace have been considered, but the coal supply is still unsettled. Algiers has important iron ore deposits, and most of their output is at present being sent to Britain.



Steel Ingot Production by Districts and Per Cent of Capacity

Week of	Pittsburgh	Chicago	Youngstown	Philadelphia	Cleveland	Buffalo	Wheeling	South	Detroit	West	Ohio River	St. Louis	East	Aggregate
March 26	100.0*	91.5	82.5	91.5	94.0	99.0	94.0	95.0	95.0	62.0	90.0	71.5	113.0	89.5
April 2	80.0	92.5	79.0	91.5	96.0	104.5	94.0	95.0	90.5	60.0	88.0	71.5	94.0	87.0



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PITTSBURGH LECTROMELT FURNACE CORPORATION
PITTSBURGH 30, PENNA.

UAW Gets Shakeup But No Basic Change In Faction Split

By STAN BRAMS

Atlantic City, N. J.

• • • A week-long succession of political maneuverings dominated the tenth annual convention here of the CIO United Auto Workers Union, but when the debris-strewn convention hall was finally cleared Saturday night there was shakeup but no basic change in the faction-split composition of the all-powerful executive board.

Secretary-treasurer George F. Addes, beaten in the first big test when Walter P. Reuther was elected president over his favorite, incumbent R. J. Thomas, came back in conjunction with the Thomas forces to elect the three other major officers and retain the status quo of the board. On the basis of the proportionate vote accorded each board member on the basis of membership in each region, Addes backers had 690 votes, Reuther's, 430. In addition, one board member classed as neutral—Holt, of Saginaw, with 49 votes.

That being the case, Mr. Reuther's victory is far from as complete as it would have been had he been able to capture six or seven more delegates for his man, John Livingston, in the vice-presidential race against Richard Leonard, national Ford director and a Thomas-Addes caucus member. Mr. Leonard won by less than 100 majority in about 8000 votes cast by 1800 delegates.

But Mr. Reuther plans to move vigorously to solidify a pattern of power built around a strong central administration. First on his agenda is a drive to organize several hundred thousand white collar workers in plants under UAW contract. General Motors appears to be looming up as the first ob-

jective; leaflets urging salaried peoples' support were distributed many times in the recent GM strike.

Mr. Reuther's election will be an aid to the struggling independent Foreman's Assn. of America. The new UAW president enunciated as policy his favor of supervisor unionization, and said he would support FAA. Conceivably, however, if the infant CIO United Foremen's Union begins to organize in Detroit he may switch sympathies.

Mr. Reuther declared in favor of a system of national health insurance financed by a 3 pct payroll levy on all employers.

The union set up provisions for a strike fund for the first time in its history. In raising dues from \$1 per month to \$1.50, the laying aside of 5¢ of this amount for a strike fund was specified. Today's

union membership approximates 600,000 workers, providing \$30,000 per month for the national strike fund. In all, 65¢ of the \$1.50 monthly dues will now go to the international, raising gross income at Detroit headquarters to \$390,000, of which \$80,000 must be set aside in the strike fund and other earmarked balances.

The president's report showed that UAW now has 1968 plants under contract to it, 715 of them in Detroit and 989 in Michigan. The total compares with 1671 in 1944. During the period from July 1944 through December 1945 the union participated in 197 elections, winning 145.

One interesting section of the report dealt with UAW agreements now in effect. Surprisingly enough, this report showed that of 1343 agreements analyzed, the union had a maintenance of membership pro-



vision in 39.3 pct of them, a union shop clause in 39.3 pct, and a check-off in 34.4 pct.

Three-fourths of these contracts provide paid vacations or bonus in lieu of vacations. Of the total, 69 pct give 1 to 4 hr call-in pay, and 62.3 pct provide extra bonuses for night work.

Interesting throughout the entire convention were the positions and influence of numerous "paper locals" which came to the meeting with big voting strength even though their plants had largely been closed when the war ended. Because convention votes are predicated on average per capita dues paid over

the past 18 months, since the last convention, such union locals as Willow Run, no longer actually in active existence, had big blocks of votes. Because most of them fell into the orbit of retiring vice-president R. T. Frankenstein, they largely voted in favor of the Addes-Thomas forces.

And they resisted strongly when moves were made to take over their treasuries. A recommended constitutional change providing that the international board could absorb their money when they dwindled to discommensurate size was emasculated by specifying that $\frac{7}{8}$ of the board had to favor the absorption.

Purchase of Sharon's Lowellville Plant by Sheet Producers Contemplated

Pittsburgh

••• When Sharon Steel Corp. completes operations at its Lowellville, Ohio, plant and concentrates all steel production and semifinishing at the new Farrell Works, it is likely that negotiations will come to light for the purchase of the Lowellville plant by a group of non-integrated hot-rolled sheet producers consisting of Superior Sheet Steel Co., Canton, Ohio (subsidiary of Continental Steel Corp., Kokomo, Ind.), Apollo Steel Co., Apollo, Pa., Mahoning Valley Steel Co., Niles, Ohio, and Reeves Steel & Mfg. Co., Dover, Ohio. The consolidation of these competitive manufacturers is in the interest of only obtaining a source for sheet bars, available through the purchase of Lowellville.

These companies have a combined capacity for the production of hot-rolled sheets totaling 406,740 tons. Individually, their capacities are: Superior, 90,000 tons; Mahoning, 97,500 tons; Reeves, 87,240 tons; and Apollo, 132,000 tons. This total is approximately 50 pct of capacity of all independently operated hot mills in the country.

Purchase of Sharon's Lowellville plant, with an annual sheet bar capacity of 463,300 tons, is believed to be a last resort tactic to insure a raw material source. Based on the respective sheet production capacities of the four companies, the sheet bar share of each breaks down as follows: Apollo, 153,000 tons or 33 pct; Mahoning, 111,000 tons or 24 pct; Superior, 102,000 tons or

22 pct; and Reeves, 97,300 tons or 21 pct. Figuring a scrap loss from sheet bar to sheet in the range of 10 to 15 pct, the sheet bar capacity of Lowellville is just about adequate to cover the needs of these producers. The Lowellville plant will make these companies fairly independent since there is a blast furnace with a rated capacity of

GUESSING GAME: Coal operators don't know yet what John L. Lewis wants from them in the way of wages. He is holding out for a welfare stipend with control in the union's hands. Supervisory organization will be a tough nut to crack. Meanwhile, steel mills start slowing down this week because of the coal strike or stoppage—which ever side you are on.



175,000 tons a year and six 150-ton openhearth with an annual rated capacity of 600,000 tons. The 15-ton electric furnace, rated at 36,000 tons a year, has been removed from the plant by Sharon Steel Corp., and moved to its Farrell works.

The purchase of Lowellville by these companies apparently has the blessing of CPA, mainly because of the highly critical situation that now exists in the sheet supply. Price negotiation details are not known, but it is reported that RFC has been asked for a loan to complete the purchase. There have been some rumors of a government subsidy of the project, but this has not been given too much credence by steel observers because of the potentialities of such a precedent. A price advantage may be the answer, since the sheet demand now is so great that consumers will pay a premium for the material. By the time that sheet production catches up with demand, operating experience in the plant may permit price schedules by the companies that are competitive. However, since continuous mills produce sheets in the lighter gages by cold reduction, the spread between the hot-rolled price and the price of comparable cold-rolled sheets made on continuous mills permits a little leeway to these hot mills.

Sharon Steel Corp. is still operating Lowellville and will for at least another month, since there are April sheet bar commitments already made for the mill. May 1 may be moving day, but this is not yet definitely known. The consummation of negotiations by these hot-rolled sheet producers will breathe new life into them. It is certain that their normal sources of sheet bar are closed up at least until such time as the sheet bar producers are on the lookout for tonnage as well as profit items. The hot-rolled sheet producer cannot hold on that long, and the loss of sheet bar sources has already caused the Parkersburg Iron & Steel Co. to go out of business.

Buffalo Forge Net Drops

Buffalo

••• The Buffalo Forge Co. and subsidiaries reported net profits for the first quarter, ended Feb. 28 of \$238,979 after provision for income and excess profit taxes, compared with \$247,778 for the same period a year ago.

Canada Raises Steel Prices \$5 Per Ton; Other Adjustments Also Made

Ottawa

••• Canadian steel prices, following the lead in the United States, have been advanced \$5 a ton Apr. 1. The steel price level in Canada when freight and other factors are taken into consideration has been lower than prices in the United States, according to sources here.

At the time steel prices were increased, manufacturers who process and fabricate steel products were granted the right to increase their maximum selling prices by the amount of the increased cost of the steel used plus 25 pct to offset increased selling commissions.

Certain products such as farm machinery will not be affected by the latest order because they are under specific examination to determine possible need for overall adjustment. The price advance on steel and products made from steel does not remove them from price ceilings, according to official sources.

It merely provides specified ceiling increases on the products named in the order and permits a formula adjustment for secondary and processing manufacturers whose raw material costs have been increased by the steel price adjustment.

At the time steel prices were advanced, pig iron was also increased \$5 a ton and it is assumed that fabricators of this product will be entitled to the same adjustment as have been provided for steel consumers.

One large steel producer in Canada, who for some time has been forced to sell its products at \$2 a ton below the general level of steel prices, is understood to have been granted the right to eliminate this differential.

Observers here point out that the across the board raise in steel prices in Canada was somewhat different than those recently put into effect in the United States. In the latter country the average increase was \$5 a ton but all products were not advanced the same amount.

Those on which losses were greater or where the return was the least were given the biggest boost. Semifinished material, although being made at a loss in some cases, was advanced only \$2 a ton for

sheet bars and \$3 a ton for other semifinished items in order to furnish a protection for non-integrated makers who had complained that the differential between semifinished steel prices and finished steel quotations was insufficient for profitable operation.

Gas Assn. Explores New Research Phases

Toledo

••• New research and experimental phases of the gas industry, emphasizing gas furnace engineering, were subjects of a number of technical papers presented before conferees at the 1946 American Gas Assn. Sales Conference on industrial and commercial gas, held here recently.

Divided into industrial and commercial-panel sessions presided over by Harry A. Sutton, Service Electric & Gas Co., Newark, N. J., Karl Emmerling, East Ohio Gas Co., and Leon Orusoff, Washington Gas

NOT AFRAID: Despite talk of dirty work at foundries and stories of unusually hard labor the industry still has good recruits. Here is a youngster at the Henry Ford Trade School who is learning a molder's job.



Light Co., Washington, D. C., the agenda included papers by E. G. Decorolis, Surface Combustion Corp., Toledo, on "The Growing Use and Sales Importance of Prepared Atmospheres," "Heat Operations in the Plastics Industry," by Herman J. Rappolt, J. O. Ross Engineering Corp., New York, and "Practical Phases of Applying High-Speed Direct Gas Heating" by Fred Hess Sela Corp. of America, Phila.

C. H. Lekberg, Northern Indiana Public Service Co., Hammond, Ind., spoke on "Interruptible Quenching," and C. C. Eeles, the Ohio Fuel Gas Co., on "Heating by Immersion and Submerged Combustion," and K. W. Stookey, the Gas Machinery Co., Cleveland, on "Indirect Heating Moves Up into the High Temperature Bracket."

Mr. Stookey pointed out that there is a wide and unexplored need for heats as high as 2300° to 2400° F, to be used with special atmospheres, offering as proof an inquiry for the heating of steel forging stock up to 2300° F with the hopes that die life can be greatly extended, forgings held to closer tolerances with the subsequent saving of stock metal, better surface conditions and less expensive machining to be performed.

Wheeling to Buy Mingo

Wheeling, W. Va.

••• Wheeling Steel Corp. on Apr. 1, exercised an option that it has held since late last summer for the purchase of the Mingo plant of Carnegie-Illinois Steel Corp. Wheeling will not operate the plant immediately, but has engaged A. J. Boynton & Co., steel mill engineers, of Chicago to study development of the property, consisting of 156 acres of plant site, three blast furnaces and some auxiliary blast furnace equipment, two bessemer converters, and the use of additional acreage for the disposal of plant waste. This latter property is located near the Steubenville plant of Wheeling Steel Corp.

Options are also held on privately owned property on the east side of Mingo which will be exercised at a later date. This property quite possibly may be railroad-owned property that Wheeling is seeking in order that a railroad line can be run from the Mingo plant to the Steubenville plant where the bulk of Wheeling's finishing operations are now centered.

Assures System of Priorities Will Not Saddle the Steel Industry

Washington

• • • Assurance that the steel industry would not be saddled with an overall system of priorities was given to the Iron and Steel Industry Advisory Committee by CPA on March 27.

However, recognizing that there is not enough steel to satisfy the requirements of all users, the industry members finally agreed, after three hours of discussion, to a plan advanced by CPA Administrator John D. Small whereby the minimum requirements of newcomers, nonintegrated mills, warehouses and small business would be sandwiched into steel mill schedules.

Simultaneously, the House Small Business Committee has informed CPA that unless it is made possible for small plants to obtain priorities for steel, consideration will be given to calling hearings on the subject shortly after Apr. 1.

To further the voluntary plan for taking care of the steel requirements of newcomers as well as other emergency needs, the Industry Advisory Committee recommended the appointment of a committee composed of four prominent steel executives to help recruit about a dozen experts from the industry to assist CPA's Steel Branch.

The four men appointed to the committee have worked with CPA and its predecessor, WPB, and are familiar with its operations. These men are: Norman Foy, Republic Steel Corp., former director of WPB's Steel Div.; J. L. Block, Inland Steel Co., former WPB deputy director of the Steel Div.; J. V. Honeycutt, Bethlehem Steel Co. and C. L. Longfield, Youngstown Sheet & Tube Co., both former assistant directors of WPB's Steel Div.

The men to be recruited by this committee will aid newcomers in placing their orders, suggest substitutes and render technical assistance to all consumers.

The meeting was highlighted by the reading of a statement by Henry J. Kaiser in which he accused the steel industry of distributing their products on a basis of favoritism. Mr. Kaiser also called

for a more enlightened viewpoint on the part of industry if the United States is to achieve industrial prosperity.

The industry members countered Mr. Kaiser's claims by stating that there was sufficient steel to satisfy the minimum requirements of all users, provided distribution was not hampered by artificial restraints.

Despite occasional flaring of tempers the discussion of steel distribution wound up with a general feeling of goodwill. Mr. Kaiser expressed the view that a lot of good would come out of the meeting, and that in his opinion the steel needs of Kaiser-Frazer would be met under the voluntary plan adopted by the committee.

Increased production over the next few months will be one of the primary factors in solving the distribution problem, the committee told CPA. Based on 90 pct of capacity the industry expects to turn out 56 million product tons this year, which is 25 pct higher than any previous peacetime year.

CPA told the industry members that the export allocation for the six month period beginning Apr. 1

would be approximately 800,000 tons. About 155,000 tons of this export allocation will be tinplate. Several companies that have not been in the export market in the past have been brought in to spread the load and prevent possible maldistribution to domestic users.

In relation to the emergency housing program the industry members expressed the view that pig iron would be short for another 12 months, partially due to the shortage of scrap.

Industry members attending the meeting were: Henry J. Kaiser, Henry J. Kaiser Co., Inc.; Lester Perry, U. S. Steel Corp.; W. W. Sebald, American Rolling Mill Co.; Walter S. Tower, American Iron & Steel Institute; Walter Watson, Youngstown Sheet & Tube Co.; C. M. White, Republic Steel Corp.; Robert W. Wolcott, Lukens Steel Co.; Elton Hoyt, II, Pickands Mather & Co.; Walter Howell, Bliss & Laughlin, Inc.; J. V. Honeycutt, Bethlehem Steel Co.; Adam Hazlett, Jones & Laughlin Steel Corp.; Thomas M. Galbreath, Sharon Steel Corp.; and J. L. Block, Inland Steel Co. Messrs. Perry, Sebald, Watson, Honeycutt, Hazlett, Galbreath and Block appeared as alternates. Charles A. Holcomb, Deputy Director of CPA's Steel Branch, presided.

OPA Chief Hints Price Ceilings on Machinery May Soon Be Lifted

Washington

• • • Official confirmation of reports that OPA is planning to lift price control on machinery was given by OPA Administrator Paul Porter before the House Banking and Currency Committee on Extension of the Emergency Price Control Act on March 29. (Ed. note: current reports say the action is expected by Apr. 5.)

Mr. Porter told the committee that very soon ceilings will be suspended on several large blocks of industrial equipment and a great number of relatively unimportant consumer durable items. Similar decontrol actions, he said, will follow in the coming months.

For some time there have been reports that OPA was planning to lift price control on all machinery, including machine tools. While

Mr. Porter's testimony did not indicate that removal of price control is to be so widespread as had been reported, it did make it clear that decontrol would cover a large number of items.

Mr. Porter warned, however, if OPA releases from control items which rise precipitately and cause consumer hardship, "we will reinstate control." He said that OPA must not permit its decontrol program "as rational as I believe it is, to create the kind of inflationary psychology that we seek to avoid." Mr. Porter said that he believed this policy can be made to work effectively if producers know OPA means business and consumers understand that the pricing agency is concentrating its efforts on products that really count.

Mr. Porter expressed the belief that if the country can get safely through the next 12 months, it is probable that the danger of a cumulative spiral of inflation will be past.

Steel Volume Handled By Co-ops Seen Growing Despite Quota Limitations

BY CHARLES T. POST



Chicago

•••Steel volume passing through consumer cooperatives to cornbelt farms is continuing to grow despite quota limitations and production delays hampering output of many of the staple steel farm items.

Firmly entrenched on mill books because of past sales records, National Cooperatives, Inc., which handles the bulk of the co-op business in this area, gains additional mill favor because of a flexible buying policy established before the steel shortage. Each fall, National negotiates a master agreement with its suppliers under which its 11 wholesale members may buy for about 1500 retail outlets handling steel.

A steel committee composed of a steel buyer from each of the wholesale members compiles requirements for the entire group for the following year and orders are placed with the mills Oct. 1. The feature of the system which has the mills scrambling for this business is a stipulation that the mills may ship at their convenience and change specifications of material to be shipped within broad categories. Rather than make firm specifications, the co-ops take the attitude that whatever is shipped along the lines of general farm requirements can be sold through their outlets and the farmers will be glad to get it.

National has stuck through thick and thin to its suppliers of past years—American Steel & Wire Co., Northwestern Steel & Wire Co., Pittsburgh Steel Co., and Cincinnati Sheet Metal & Roofing Co.—and hence has the status of an old customer with a past buying record.

Following its first master contract in 1940, National's steel volume reached close to \$3,500,000 in 1944, hopped to about \$6,000,000 in 1945, and if all goes well this year may approach \$9,000,000, the group anticipates. This would mean 1946 sales of over 125,000 tons.

Deliveries slumped during the steel strike, as they did for other customers, but because the contract specifies no delivery dates the co-ops have not resorted to the crying towel, but are biding their time.

Biggest wholesale unit in the National group is the Indiana Farm Bureau, Indianapolis, which had steel sales of \$1,300,000 in 1944 and \$1,700,000 in 1945. Including aluminum roofing, a rapidly growing item, Indiana is hoping for a \$2,000,000 volume this year. Head of Indiana's building materials department, and chairman of National's steel committee, is E. J. Fricke, who is responsible for adding many new items to the line handled.

Last year the group acquired from the government 100 carloads of steel fence posts, originally intended for barbed wire entanglements and similar uses. The U-shaped posts, 8 ft long and weighing 16 lb each, were ideal for meeting a critical shortage of posts for farm fencing. On this year's program, aluminum roofing sheets will be a big item for the first time. The co-ops have sold \$300,000 worth this year, and the only visible limitation is ability to secure sheet deliveries from producers, who are reported to be sold out 2 yr ahead. The sheets are formed for the co-ops by the

Cincinnati Sheet Metal & Roofing Co.

Fence continues to be the biggest item, but aluminum roofing will pass galvanized siding to take second place this year. Sales are booming in other new lines, with 30 cars of so-called "muskrat fence," 40 cars of poultry netting, and 10 cars of hardware netting scheduled for delivery this year. The "muskrat fence" formerly had a small market in levee construction, but the co-ops are selling it for cribbing, netting under chicken houses, and lawn fence.

The farm equipment manufacturing program of the cooperatives has not been so fortunate as its steel sales outlets in securing material. The co-op tractor, which has suffered many vicissitudes without ever securing volume manufacture, currently is slated for production in a Canadian plant.

An ambitious program set up for the sale of Quonset huts never has reached fruition because of inability of Stran Steel Division of Great Lakes Steel Corp. to supply them. Excellent results have been secured on test units erected in various portions of the countryside, however, and the group is ready to go ahead as soon as the structures are available.

Electroplaters to Meet

Pittsburgh

•••The American Electroplaters Society will hold their 33rd annual convention June 17 to 20 at Hotel William Penn here.

Railroad Specialty Ceilings Boosted

Washington

• • • Formerly under the machinery regulation, OPA has brought all railroad parts and assemblies under the higher ceiling prices covering railroad specialties. OPA said that 90 pct of the shipping weight of these parts and assemblies is steel castings.

This action, effective April 1, the pricing agency said, will result in an increase in the Oct. 1, 1941, prices of these products of 15.5 pct. Products added to coverage of the specialties schedule are almost wholly of cast steel and have been customarily considered as railroad specialties by the trade. Included in the parts and assemblies as railroad specialties are such products as underframes, underframe parts and truck parts for locomotives, tenders and cars, hopper door frames, hinges and drop end locks.

In another change, OPA authorized the addition of pattern costs to the prices of any railroad specialties in cases where it was the producer's customary practice to do so from Oct. 1 to 15, 1941. In a third change, the base date for determining maximum prices of miscellaneous types of specialties was changed from July 15, 1941, to the period Oct. 1 to 15, 1941, inclusive.

Woodruff Heads Up Construction Bureau

Washington

• • • Clarence A. Woodruff, field director of CPA, has been named acting director of the newly created Construction Bureau which will administer Veterans Housing Order 1, it has been announced by Administrator John D. Small.

Hugh Porter, director of CPA's Inter-Agency Div., and Ivan A. Bickelhaupt, former Navy captain in the engineering branch, have been named deputy directors.

In addition to administering Priorities Reg. 33, the Construction Bureau will include among its duties estimation of requirements and availability of materials and equipment and advise CPA's priority policy committee on the volume of construction which can be undertaken.

South Bend, Ind.

• • • Studebaker Corp. is the first of the motor car makers to announce that it will build 1947 automobiles this year. The company is now changing over, and will go into production sometime this month.

A good share of the \$16 million earmarked for postwar developments at Studebaker has been allotted for the new cars, which will appear in both the Champion (low-priced) and Commander (medium-priced) series.

Dealers were told that "important engineering developments" would feature the postwar models. Major design changes are also promised.

Negotiates for DPC Plant

Detroit

• • • The Saginaw Malleable Iron Div. of General Motors Corp. is completing negotiations for purchase of the Tilton plant, built and operated for the Defense Plant Corp. during the war.

The plant will continue as an operating unit of the Saginaw Div., and facilities will be expanded. The present building, equipped for malleable axle castings, is being converted to a gray iron foundry. A new malleable foundry will be built on adjoining property, with construction contracts already awarded.

Operation of the new gray iron foundry is expected by early August, with plans being rushed to supply castings for auto and truck output. When this unit is in operation it will employ about 700, and when the new malleable foundry is completed, approximately 1600 are expected to be on the payroll.

WAA Offers Cast Iron Pipe

Washington

• • • A sizable quantity of surplus cast iron soil pipe and fittings was placed on sale Mar. 29 by the 33 regional offices of WAA on a fixed-price, continuous sale. Thirty pct is reserved for priority claimants and the remainder is offered to plumbing wholesalers and retailers. The offerings are in new condition, the pipe varying from 2 to 15 in. in standard, victory, and extra-heavy. Fittings are of various types.

OPA Clarifies Price Policy Provisions

Washington

• • • OPA has clarified several additional important provisions of the ceiling price increase in iron and steel products granted March 1. Previously, OPA has clarified numerous provisions of the steel price schedule since granting higher prices.

OPA has made clear through a number of changes, effective April 1, the following procedures:

1. Maximum prices of secondary quality products should be computed by taking a percentage (listed in section 1306.10E of revised schedule 6) of the base price of the corresponding prime quality product, after adding the price increase to the base price of the latter.

2. Ceiling price increases on iron and steel products granted March 1 apply to products made of iron, other than wrought iron, as well as those made from carbon steel (see OPA-6280 for list of products).

3. The increase of 35¢ per 100 lb granted for galvanized sheet applies also to galvanized and zinc coated specialty sheets.

4. The provision permitting producers of rails to price them on a net ton rather than a gross ton basis is amplified to provide that in making the conversion, base prices should be cut the appropriate amount to reflect the difference in weight while extras, now listed in gross tons, may be added for net tons without any reduction.

Bolt, Screw Prices Rise

Washington

• • • Effective April 1, OPA granted an increase of 7 pct in producers' ceiling prices for bolts, nuts, screws and rivets. Resellers of these products are not being authorized now to pass along the price increase, but OPA said that it is conducting a study to determine the amount of the increase, if any, that resellers may be permitted to add to their ceiling prices.

A-C Exhibits World's Largest Gas Turbine Unit in Operation

Annapolis, Md.

••• Performance of the world's largest gas turbine, now undergoing intensive testing at the Naval Experimental Station here, is exceeding expectations and indications are that this type unit will find wide use in the near future as propulsion equipment for naval vessels, it was revealed last week in a joint announcement by the Navy and Allis-Chalmers Mfg. Co., the latter being the builders of the unit. Details of the test were made public for the first time at a press conference here during which the technical press was permitted to observe the unit in operation.

The gas turbine, designed to produce 3500 hp when operated at 1500°F, comprises a parallel turbine arrangement, with one turbine driving a 20-stage axial flow compressor and the second, or power turbine, driving a dynamometer. The compressor has been showing 85 pct efficiency when operating with a full load of 40,000 cfm at 45 psi. At the time of the announcement the unit was running at an inlet temperature at the power turbine of 1350°F. Opinion of Navy engineers on basis of performance to date is that the unit will operate successfully at 1500°F with efficiencies exceeding expectations.

In view of the lack of information on operation and performance of gas turbines at 1500°F, the highest temperature at which this type of turbine has ever been run, the Navy's program called for starting the test at lower temperatures and slowly increasing both speed and temperatures, taking test readings at each change.

The operating cycle of the turbine was established for convenience in conducting the tests and not for maximum performance, it was explained by W. B. Tucker, manager, aircraft section, steam turbine department, Allis-Chalmers. Mr. Tucker said that in a unit designed for commercial application, the compressor would be built in two elements with intercooling between and that the turbines would be in series with reheating at the inlet of the low pressure element.

Arrangement of the Navy turbine at Annapolis involves air intake by a 20-stage axial compressor which passes the air from the compressor to the regenerator and thence to two combustion chambers fired with a No. 2 fuel oil. One combustion chamber feeds the gases to a turbine that drives the compressor; from this turbine the gases pass through the regenerator and then to the stack. The second combustion chamber feeds heated gases to the power turbine that drives a dynamometer. From the power turbine, the gases pass to the exhaust piping where they join the exhaust gases from the first

turbine, then pass through the regenerator and into the stack.

A description of another Navy gas turbine, made by the Elliott Co., Jeannette, Pa., was published in THE IRON AGE, Aug. 2, 1945, p. 102.

When viewed last week the turbine was operating at 5150 rpm. Feed air temperature was 450°F, which was regenerated to 650°F. Temperature at the inlet to the power turbine was 1350°F, with the first stage showing a drop to 11°F. Stack gases, after passing through the heat exchanger, were 550°F. It is expected that the 1500°F, 5200 rpm-full power level will be reached some time this summer.

Among the construction features described by Dr. J. T. Rettaliata, director, Dept. of Mechanical Engineering, Illinois Institute of Technology, and consulting engineer on gas turbines for Allis-Chalmers, was the use of special types of expansion joints wherein expansion is accommodated by rotation of adjoining members of the joint. Dr. Rettaliata explained that the regenerator is of the counterflow type with hot gases carried inside the tubes and having a designed efficiency of 60 pct. The turbine incorporates air-cooled flame tubes to eliminate brickwork and to provide quicker response to load changes. Starting of the unit is effected by means of two electrodes in the combustion chamber. Some 15,000 volts are jumped across the gap and then the electrodes are withdrawn. The compressor is started with an electric motor of less than 100 hp.

The turbine features five stages, two impulse and three reaction. Blades of the turbine are of Timken 16-25-6 alloy*. Heavy stationary parts are of 25 Cr-12 Ni steel. The high temperature piping is built with an outside metal strength member lined with mineral brick, followed with a standard grade of heat resistant steel.

**This high-temperature alloy was described in the article "16-25-6 Alloy for Gas Turbines," THE IRON AGE, Jan. 17 and Jan. 24, 1946.*

The Navy's test program, under the direction of Lt. Comdr. Kottcamp, is one of the most extensive ever conducted by the experimental station.

MODERN ALL-WELDED STEEL HOPPER CAR: *Designed by the Railroad Research Bureau of U. S. Steel Corp. subsidiaries. Built of corrosion-resisting U.S.S. Cor-Ten, the new car weighs 6540 lb less than a car fabricated in accordance with standard carbon steel specifications of the Assn. of American Railroads, the saving in weight being translated into increased cubic capacity. Protruding structural members of the traditional car, as well as ledges and pockets, have been eliminated from the inside, leaving it smooth for free flow of burden.*



Allegheny Ludlum Drops Veteran Superseniority Setup in Re-employment

Pittsburgh

••• Allegheny Ludlum Steel Corp. announced Mar. 20 it has executed an agreement with the CIO-United Steel Workers of America that all production workers including returning veterans will be assigned to jobs on the basis of union contract seniority. This is a departure from the practice followed in recent years under which employees returning from military service have been accorded "superseniority," resulting in some cases in the veterans displacing employees with greater length

of service in the company's employ.

Ralph C. Edgar, company personnel director, explained that the change in re-employment policy was dictated largely by a decision handed down Mar. 4 by the U. S. Circuit Court of Appeals, Second Circuit, which interpreted the re-employment provisions of the Selective Training and Service Act of 1940 to mean that a veteran should be restored to his original position without loss of seniority, rather than be accorded "superseniority."

"The ambiguous wording of the re-employment provision of the law

has placed the company in a difficult position between the demands of the veterans on one hand and nonveterans on the other," Mr. Edgar said.

"Gen. Lewis B. Hershey, director of Selective Service, announced in May 1944, that veterans are entitled to reinstatement to their jobs for one year regardless of the seniority claims of the nonveterans. In many companies this interpretation was challenged, and conflicting seniority claims of veterans and nonveterans were submitted to arbitrators and to the courts. Rulings were made both ways. Federal district courts in Ohio and New York sustained superseniority, but federal district courts in Michigan and Illinois ruled against it. The situation remained confused. Congress has thus far failed to clarify the law despite many requests, including one from the President of the United States.

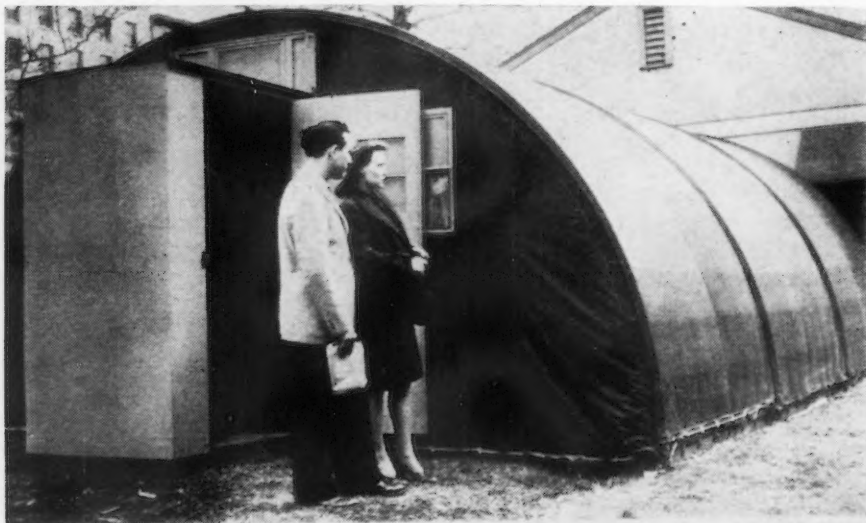
"We believe the Mar. 4 decision of the Second Circuit Court tipped the weight of legal authority against General Hershey's interpretation," Edgar stated.

"Therefore, after long consideration and in consultation with the union, and with the interest of both veterans and nonveterans in mind, we have decided to abandon the policy of superseniority.

"We want to state that we will give the veteran every privilege to which he is entitled. No one, for example, will contest the veteran's right to seniority determined from the date he came to work for the company and including the time spent in military service. We will defend that right. We feel sure that the majority of our veterans will be satisfied to compete for jobs on that basis."

The newly executed company union agreement embodies the provision that the union will make no claim for back wages for nonveteran employees who up to this time have been displaced from their jobs by veterans with less seniority, Mr. Edgar explained. The agreement also provides that "as soon as it reasonably can, but in any event within a period of 30 days, the company will restore all employees who have been heretofore displaced by virtue of the company's prior interpretation of the act to the job to which their seniority entitles them."

EMERGENCY QUARTERS: One-room house costing \$1000, of the type used by the Army in the Arctic and in the Tropics, is being offered for sale during the present housing shortage. Canvas blanket containing spun glass insulation is stretched over the frame.



American Bantam Car Co., Sets Up to Build Cargo Truck Trailers

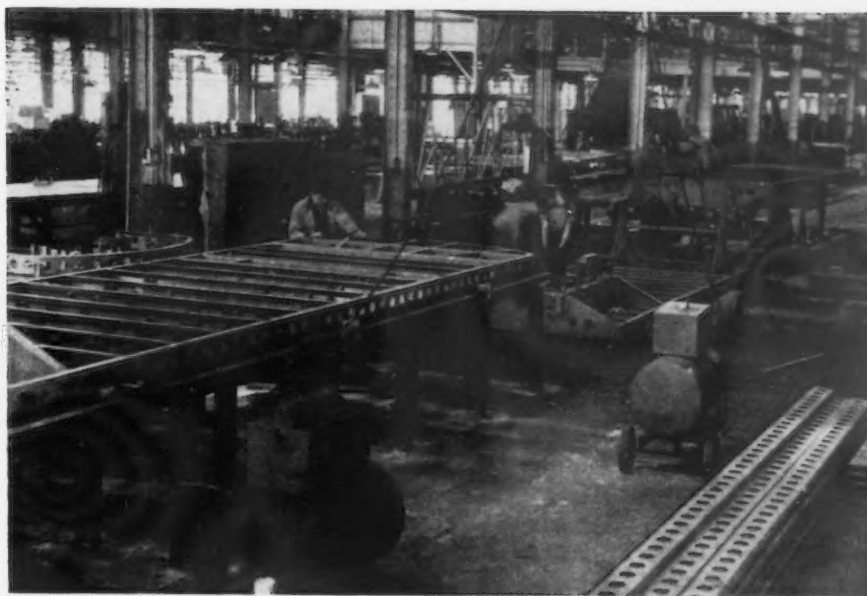
Butler, Pa.

••• After examining the post-war prospects of the very light car field, American Bantam Car Co., decided to get out of it entirely and devote its energies toward a new endeavor—truck trailers. War experience in welding, sheet metal fabrication, and other such techniques pointed the way to the new business.

A short time ago the first of a series of standardized cargo trailers came off the production line shown here, and peak output is expected to be about 50 units a day after another line is installed. Material shortages have delayed the program somewhat.

The company is also turning out 200 ¼-ton trailers a day. With the both jobs, steel consumption at the plant will reach a peak of about 2100 tons a day.

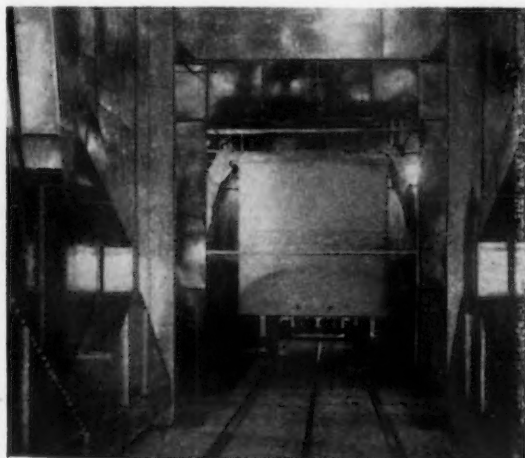
The new cargo trailer is sold through a distributor chain which will eventually consist of 60 distributors throughout the country and which already consists of about 47 distributors mainly east of the Mississippi and in the Southwest. The ¼-ton trailer is sold directly to dealers, which now number 2000 and will ultimately total 3500.



A TRAILER STARTS: Here is the beginning of the trailer assembly. Square electric-welded tubing give rigidity to both the base and sides. The assembly is electric welded throughout.



WHEEL ASSEMBLY: Claimed by Bantam Car as something new, the springs of the trailer only cushion the load. It is carried on a torque bar arrangement. Extensive tests have proved this construction highly satisfactory. The entire wheel assembly is shown in this box-like arrangement, welded to the floor frame.



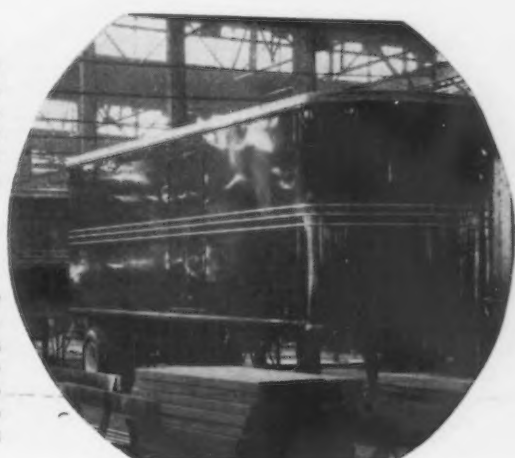
LEFT

PAINTING: The units are spray painted and then move into the dryer booth in the foreground. Eventually, the chain drag in the floor will move the units along the assembly line.

o o o

RIGHT

THE FIRST: The first trailer produced commercially at Bantam Car. Lack of specific parts is holding up mass production. Distributors throughout the country have been engaged to handle Bantam Car's "Super-cargo" trailers.





George H. Griffiths, Hardware Age Head, Dies

• • • George H. Griffiths, president and general manager of *Hardware Age* and vice-president of the Chilton Co., publishers of *Hardware Age*, *THE IRON AGE* and other business publications, died on Mar. 27 at Orange Memorial Hospital, Orange, N. J., following an illness of several weeks.

Mr. Griffiths was born in England and entered the publishing field more than 45 yr ago as a reporter for the *Chicago Chronicle*. For 36 yr he had been associated with the Chilton Co.'s publications, *THE IRON AGE* and *Hardware Age*, starting that connection as editor and business manager of the Chicago *IRON AGE* office. His aptitude and ability were such that when *Hardware Age* was established, three years later, he was brought to New York to manage that publication.

Undoubtedly, a very large part of the success of *Hardware Age* was due to its helmsman, George Griffiths, who steered it safely through both smooth and stormy waters. But his influence went much farther than his immediate interests in that publication. His interest in and knowledge of *THE IRON AGE*, and his close association with this sister publication, for many years as secretary of this subsidiary has been of inestimable value. In similar measure, his publishing experience and good judgment has been unsparingly given, as director and vice-president of the Chilton Co. to its other publications.

Graft Charges Climax Complaints From Machine Dealers of WAA Policies

Cleveland

• • • Climaxing complaints by machine tool dealers, a red herring was found in the heralded "Goldfish bowl policy" of the War Assets Administration regional office here when it was disclosed that an FBI report on charges of graft, bribery and other alleged irregularities was in the hands of Washington officials.

While the Reconstruction Finance Corp., once temporary parent of WAA, had started its own investigation of the charges before the FBI began investigating the case, complaints that some machine tools were sold before they were legally declared surplus or legally offered in priority markets, and that some machines were declared scrap, and priced and sold accordingly only to reappear in the trade whole and at normal used machine tool prices, were also being investigated.

Floyd E. Brickel, Regional WAA director, told a press conference that four, and possibly five, members of the machine tool sales staff were involved and that almost all of the tips leading to investigation of suspects, all employees of the machine tool sales unit, came from other employees.

"On Jan. 10," Mr. Brickel said, "an employee came to me and said he had just had a telephone conversation with an individual who said he had made a special payment to another member of the machine tool sales unit for 'special service.'"

"I called in the accused employee at once," Mr. Brickel continued, "and his accuser repeated the charge, specifying that the 'special payment' was a money bribe given in an attempt to facilitate purchase of a machine tool.

"The employee denied taking a bribe but admitted he had accepted employment with a concern active in buying surplus property. The employee was suspended immediately."

On Jan. 25, Harvey Fosner, a member of the WAA Compliance & Enforcement Div. in Washington, who arrived in Cleveland in November, was asked by Mr. Brickel to make a complete investigation of the agency's machine tools sales section. Mr. Fosner, who was unable to divulge any of the details of his investigations, said that all evidence on the alleged bribes, gratuities and dual employment had been turned over to the FBI.

However, on Feb. 13, Mr. Fosner

investigated an alleged gratuity to a WAA employee, but the result of this was withheld pending another case in which he was involved on Mar. 5.

At the same time, Mr. Brickel instituted an investigation of owning agencies declaring surplus property and conditions were rectified.

Because of the great activity centering around surplus machine tools, local WAA officials have been eager to develop the sales unit which now has some 35 salesmen. Reliable sources in the trade, however, have since the inception of the dealer-agent program privately stated that the interminable delays, between the time a machine was "frozen" and final delivery to the customer, were destroying their faith in the entire WAA sales structure.

It is not the fault of local officials, however, according to some industry observers, that the situation, locally at least, has been a hodgepodge. Many proposals made by various advisory committees have not been acted upon, much less accepted, although they were originally made months ago and frequently repeated since.

Some quarters believe that the developments here will serve to bring the industry's recommendations on government-owned surplus machine tool disposal into sharp focus.

Weekly Gallup Polls . . .

American Public Rejects Isolationism

• • • With the United Nations Organization meeting in New York against a somber international backdrop, one fact stands out, according to George Gallup, director, American Institute of Public Opinion. The American voters are not retreating back to isolationism in their thinking. An overwhelming majority believes that this nation's best interests lie in taking an active part in world affairs.

Veterans of World War II are even more markedly in favor of this country's being active in world affairs than other citizens.

The Midwest, so often characterized as isolationist, is as overwhelmingly in favor of the idea of internationalism as the rest of the country.

Thus, despite the troubled world situation, the threat that history will repeat itself, that Americans, disillusioned and disappointed with postwar quarrels among the victors, will retreat into isolationism has as yet shown no sign of developing.

Field reporters questioned voters in all walks of life, in all parts of the land, as follows:

"Do you think it would be best for the future of this country if we take an active part in world affairs, or if we stayed out of world affairs?"

The results were:

	Pct
Believe we should take active part in world affairs	72
Believe we should stay out of world affairs	22
No opinion	6

On three occasions in the past 3 yr the institute has put the issue to the public. Here is the record of the vote:

	Active Part Pct	Stay Out Pct	No Opin. Pct
May 1944	73	18	9
Oct. 1945	71	19	10
Today	72	22	6

After World War I, returned soldiers were portrayed as bitter and strongly isolationist. There is little such sentiment among veterans of World War II. This group, even more than nonveterans, is convinced that the good of the United States lies in taking an active part in world affairs.

The vote of World War II veterans on the issue:

	Pct
Believe U. S. should take active part	80
Believe U. S. should stay out of world affairs	17
No opinion	3

Our participation in world affairs, following World War I, became a bitterly partisan issue. But in 1945 both parties in Congress approved the charter of the UNO, and it is certainly not now an issue between rank and file Democrats and Republicans.

The vote by political parties:

	Dem- crats Pct	Repub- licans Pct
Believe U. S. should take active part	72	72
Believe U. S. should stay out of world affairs	22	23
No opinion	6	5

All surveys on the question have found no evidence that the Midwest is a stronghold of isolationism. Findings reveal that sentiment in the Midwest is overwhelmingly in favor of participating in world affairs as it is in each of the other principal sections of the nation.

The vote by sections:

	Take Active Part Pct	Stay Out Pct	No Opin. Pct
New England & Middle Atlantic	71	25	4
East Central	74	20	6
West Central	71	23	6
South	69	23	8
Mountain States & Far West	77	18	5

All of this does not mean that the American people are optimistic about the future of world cooperation.

In fact, the third survey in this series survey found a majority fearing that Russia will not cooperate in world affairs. Moreover, a recent survey has shown more than a third among the voting population believing that we will be engaged in another war within the next 25 yr.

As this survey shows, the vast majority of people believes that political cooperation with other powers, rather than isolationism, is the best course to follow in trying to prevent future wars.

Public Confidence in Russia Dips Sharply Despite Support For Full Participation in UNO

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But while the people are eager to cooperate on a political basis with other powers, they do not show the same warmth toward cooperation on an economic basis. There is, for example, a considerable coolness toward the proposed British loan.

• • • An active force of secret agents operating throughout the world to gather useful information on other nations' activities is relatively new in peacetime American government experience.

Yet three out of every four voters in the United States think Congress should put up money for such a force.

World War II veterans included in the survey are even more emphatic than the rest of the voting population in approving the idea.

This issue has taken on added importance in recent weeks with news stories of Russia's spying activities in Canada.

Moreover, what other nations are doing has become of extreme importance to the United States, especially so far as atomic energy developments are concerned.

In measuring sentiment on the present issue, the institute asked:

"Do you think Congress should provide money to maintain a large force of secret service agents who would operate throughout the world to keep us informed of what other nations are doing?"

The replies:

	Pct
Yes	77
No	17
Undecided	6

People opposing the idea of such a force are inclined to do so on moralistic or idealistic grounds, although some also do on grounds of economy or ineffectuality. "We have no right to spy on other countries. . . . We must build on the basis of trust, not intrigue."

(CONTINUED ON PAGE 154)

AMTB Sees Need for Increased WAA-Dealer Cooperation

Chicago

• • • War Assets Administration must reconcile inconsistencies within its own organization and lay out a definite program of cooperation with dealers before its dealer participation program on surplus machine tool sales will run smoothly, opinion at the American Machine Tool Distributors Assn. annual meeting here last week indicated.

R. L. Giebel, Giebel, Inc., New York, reported for the association's committee on surplus property that steps were being taken to improve the program. Washington, headquarters of War Assets Administration secured authority Mar. 25 to specifically direct activities of the 31 regional offices, and attempt to develop a uniform procedure and closer cooperation by sending instructors to each office, he said.

"Lack of uniformity of procedures caused more headaches to the dealers and purchasers than anything else, but lack of cooperation with the dealers, especially the old established companies was a mighty close second," the association committee report said.

Suggestions have been made by the industry advisory committee that the government agency furnish approved dealers with a list of plants where machine tools will be available, thus creating a demand which will lead to prompt sale before a machine is processed and warehoused. It was also recommended that more complete descriptions of machine tools be given including serial numbers and other pertinent information to sale of the equipment. The industry also has asked fuller participation in spot sales, with rights to advance inspection, access to warehouses, and advance advertising. Scrapping of machine tools which cannot be sold and are not wanted by the services and which have been found unsalable by a local advisory committee of machine tool men also was recommended.

The industry advisory committee also has recommended that new regional advisory committees be appointed to meet with the executive responsible for handling of machine tools in each regional office, pointing out that committees previously appointed have not been

used except in a minor capacity.

Other problems to be discussed by the advisory committee with the War Assets Administration include procedure for notifying the dealer of order acceptance, the rebuilding program, trade-in policy, proper pricing of machines with standard and special accessories, and impact of surplus on industry and labor.

The association's committee made no recommendations for action by the association, but warned that, with five sixths of all known government surplus machine tools yet to be officially declared surplus, the problem would rapidly become more acute.

Many of the difficulties discussed in the Giebel report were echoed by R. A. Vidinghoff, Swind Machinery Co., Philadelphia, who spoke on "Our Experience As an Approved Dealer" and in floor discussion. Better coordination within the government agencies and services involved, clearer and more complete identification of tools, full inspection rights, and tagging procedures were mentioned.

W. F. Coleman, specialist on dealer surplus machine tool sales for the Chicago office of War Assets Administration, outlined the program carried out by his office, which has cleared a greater volume of sales than any other in the country.

Although not covered in floor discussion, distributors indicated privately that some segments of the War Assets Administration were not yet fully reconciled to the dealer participation program or fully convinced of the selling job remaining to be done.

William P. Kirk, president of the National Machine Tool Builders Assn., and vice president, Pratt & Whitney Div., Niles-Bement-Pond Co., foresaw an excellent future for the machine tool industry. He based his optimism on the "enormous lack of consumers goods" and many new consumers which have bolstered demand since the war.

He warned the distributors against labor groups which deliberately retard production and prevent machines from operating at full efficiency. He pointed out that labor must be convinced that it stands to benefit most by produc-

tion and low prices in the long run.

Labor leaders who seek good wages, low prices and high levels of employment by strikes, slowdowns, and the refusal to use productive equipment to the full measure of its capacity were compared to a driver "trying to win an automobile race by putting on the brake."

"Unless industry can sell the American public, and in particular, the employees in the country's metalworking plants, on the fact that increased productivity is the only sure road to fair wages, fair prices, employment stability, and a higher standard of living, you and I, one of these days, are going to be out of business," he said.

An informal dinner session was addressed by Mason Britton, president, Metal Cutting Tool Institute, who discussed "Europe and the Machine Tool Business." A technical session dealt with "Machining Magnesium" with A. M. Lennie, Dow Chemical Co., as the speaker.

The association discussed and recommended that efforts be made to encourage distribution of cut-outs having a uniform scale by manufacturers to facilitate planning of plant layout.

Announce Machine Tool Electrification Forum For Pittsburgh Soon

Pittsburgh

• • • Plans for the 10th annual Machine Tool Electrification Forum to be held at the Hotel William Penn, Pittsburgh, on Apr. 9 and 10, 1946, have been announced by Westinghouse Electric Corp.

Sessions will be held in the Urban Room, and the opening address "Engineering—Today's Subject," will be presented by M. W. Smith, vice-president in charge of engineering, Westinghouse Electric Corp. This will be followed by "Case Histories and Practical Applications of Adjustable Speed Drives" presented by W. B. Wigton, Cincinnati Planer Co.; B. T. Anderson, Sundstrand Machine Tool Co., and R. W. Moore, Westinghouse Electric Corp. The morning session will close with "Tailored Motors for Reversing Ser-

vice," on which subject the speakers are to be R. H. Clark, Warner & Swasey Co.; E. Y. Seborg, Barnes Drill Co., and L. W. Herchenroeder, Westinghouse Electric Corp.

In the afternoon the discussion will be devoted to "Industry Reports on Standardization," the speakers being A. P. O'Neill, General Motors Corp.; E. J. Rivoira, Cincinnati Milling Machine Co., and G. A. Caldwell, Westinghouse Electric Corp. The remainder of the session will be taken up with "Disconnect Circuit Breakers for Machine Tool Control," by H. D. Dorfman, Westinghouse Electric Corp.; "One Company's Trends in Machine Tool Wiring Methods," by A. L. Krause, Brown & Sharpe, and "Standardized Control Transformer for Built-in Application," by E. E. Opel, National Automatic Tool Co., and C. E. Herr, Westinghouse Electric Corp.

Wednesday morning's forum will open with a motion picture "Dawn of Better Living," and this will be followed by a discussion "What's Ahead for the Machine Tool Industry," by Burnham Finney, editor, American Machinist. G. Edward Pendray, Public Relations Counselor, will discuss "Machine Tool Builders—and the Public," and R. Griffith, Heald Machine Co., will speak on "Elimination of Vibration in Machine Tools." Following a short recess, L. R. Ludwig, Westinghouse Electric Corp., will describe "A New Machine Tool Motor." A formal luncheon will then be held, at which speakers will include W. P. Kirk, National Machine Tool Builders' Assn.; A. H. Phelps, Westinghouse Electric Corp., and Gwilym A. Price, president, Westinghouse Electric Corp.

During the afternoon, "The Outlook for Foreign Business" will be discussed by W. E. Knox, vice-president, Westinghouse Electric Corp. J. R. Weaver, Westinghouse Electric Corp., will speak on "A User's Future Requirements for Machine Tools," and C. A. Scarlott, Westinghouse Electric Corp., will discuss "Engineering for the Future." A "Report on the Machine Tool Industry" will be given by Tell Berna, National Machine Tool Builders' Assn., and the affair will terminate with the Annual Banquet, at which R. M. Gaylord, president, Ingersoll Milling Machine Co., will be the speaker.

Surplus Disposal Control Centralized

Washington

• • • **Formal induction on Mar. 25** of Lt. Gen. E. B. Gregory, wartime Quartermaster General, as the head of War Assets Administration at long last brought under one head all government agencies which have been struggling to unload government surpluses since creation of the Surplus War Property Administration in February, 1944.

Operating under an Executive Order until approval of the Surplus Property Act, SWPA took over surplus disposal functions previously performed by the Treasury and re-assigned them to different disposal agencies. The act also set up a Surplus Property Board to make policies and boss disposal activities.

In October, 1945, the SPB was replaced with the Surplus Property Administration, under a single administrator. The War Assets Corp. was later set up as a subsidiary of the RFC for the disposal of capital and producer goods, consumer goods, industrial plants and aircraft.

Merger of SPA and WAC, under the latter designation, was effected on Feb. 1 and the final step

WORKING WHILE HE WAITS:

Former Army Captain John S. Cholewinski at his street sweeping job in New York while awaiting employment as a mechanical engineer. Latest word is that millionaire is backing him to achieve a higher education.



of the transformation was accomplished Mar. 25 with the redesignation of the agency as the WAA with Gregory as disposal chief.

A sizable job confronts the agency. By Mar. 1, approximately \$14 billion worth (measured in original cost) of government-owned surpluses had been declared in the United States, its territories and possessions. This included about \$5 billion worth of non-salable aircraft. By June 30, 1946, it is estimated that a total of \$35 billion worth will have been declared surplus.

By Mar. 1, a total of about \$2 billion worth of salable surplus had been disposed of, not counting \$1.6 billion in non-salable aircraft, for a total dollar return of about \$900 million. Most of the disposals were by sales. (Disposals other than by sales are by abandonment, destruction, donation or reimbursement by agencies.)

In a move to cut through red tape and restrictions in order to speed up the disposal rate, broader powers have been granted the 33 WAA regional directors. These include:

Authority to initiate sales up to \$1 million with only summary approval from Washington instead of the former ceiling of \$25,000; wider choice of sales methods; and more liberal provision for effecting leases and extension of loans or credits in surplus sales.

Washington

• • • **Appointment of Maj. Gen. Glen E. Edgerton**, vice-chairman of the former WAC, as deputy administrator of War Assets Administration has been announced by Lt. Gen. Edmund B. Gregory, WAA Administrator.

At the same time Gregory announced the appointment of the following special assistants: John M. Kenderdine, Dr. R. T. Bowman, M. C. Penticoff, Nigel Bell and Robert B. Bradford.

Other WAA appointments include:

Huly E. Bray, director, Office of Information; Robert T. Williams, executive assistant to the Administrator; E. A. Stansfield, general counsel; Joseph F. Carroll, director, Office of Compliance Enforcement; Col. G. E. Monson, deputy administrator for management.

Lloyd A. Nelson, director, Ac-

counting Div.; Don S. Burrows, director, Budget Div.; Lt. Col. John E. Moore, director, Personnel Div.; W. C. Cleary, director, Organization and Procedure Planning Div.; O. V. Powell, director, Administrative Services Div.; A. J. Fushman, deputy administrator for operations; William M. Robey, director, Office of Product Assignment & Commodity Classification; Bernard E. Boldin, director, Office of Field Liaison; Benjamin W. Gelb, director, Office of Product Research; E. A. Roberts, director, Office of Mixed Sales; Brig. Gen. James A. Mollison, director, Aircraft Div.; John S. Cooke, director, Consumer Goods Div.; Frank Cree-

don, director, Capital & Producers Goods Div.

Brig. Gen. John J. O'Brien, director, Real Property Div.; C. David Williams, director, Warehousing Div.; F. W. Fitzpatrick, director, Inspection Div.; Robert J. Hayes, director, Federal Agencies Div.

James L. Kelly, director, Disposal Policy Div.; W. E. Costello, director, Advertising Div.; J. J. Wadsworth, director, Public Interest Div.; Scott W. Donaldson, director, Veterans' Div.; Lt. Col. H. L. Stier, director, Statistics & Progress Reporting Div.; Dr. N. Gregory Silvermaster, director, Economic & Market Analysis Div.

Cold Rolled Sheet Expansion To Add 750,000 Tons to Capacity

By T. E. LLOYD

Pittsburgh

• • • One of the tightest commodities from a supply standpoint in the steel industry today is cold-rolled sheets, a fact that has been aggravated considerably by the pinch that hand mills are undergoing in obtaining sheet bars for their light gage hot-rolled products. Discounting those mills that supply cold-reduced stock for tinplate, production of which totaled about 3,000,000 tons in 1945, there is capacity for about 6,300,000 tons of cold-reduced sheet per year in this country. Production totaling 5,000,000 tons a year, however, is considered excellent.

Currently, demand is running considerably higher than capacity and mills are rushing cold-reduced sheet capacity expansion programs. Bethlehem at Sparrows Point is expected to place into operation by mid-year facilities for

the additional production of 360,000 tons of cold-rolled sheet a year. Youngstown Sheet & Tube Co., is increasing its capacity about 10,000 tons a year by enlarging annealing, pickling and handling facilities. Gary Works of Carnegie-Illinois by the end of 1947 will add about 400,000 tons a year to capacity plus about 200,000 tons that will go into tinplate. West Coast expansions will add considerable tonnage also by the middle of 1947 but the bulk of this will go into tinplate.

As a matter of fact, capacity ratings of continuous sheet mills are somewhat misleading, since in many instances it is auxiliary equipment, such as annealing, heating, pickling and handling facilities, that is the limiting factor on the rolling mills. Further, there has been a general speed-up in continuous cold-reduced sheet

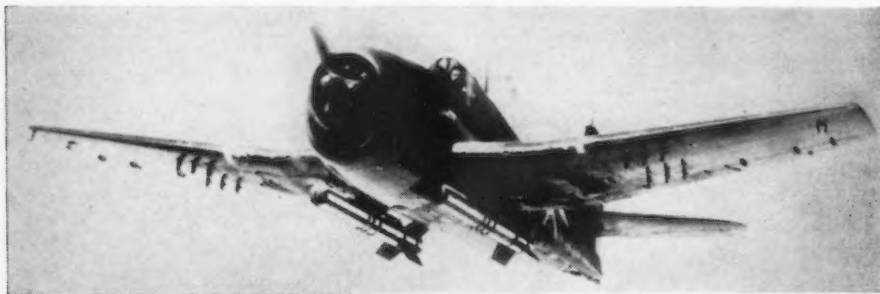
facilities that has not been evidenced completely in capacity estimations. Based on the 6,300,000 tons listed capacity, however, the output of which does not go into tinplate, the expansions will add some 750,000 tons capacity a year. Over and above this will be that capacity added by mill speed-ups and the addition of such auxiliary equipment as is needed to bring handling capacity up to rolling capacity.

Against this new cold-rolled sheet capacity is the expected abandonment of a substantial part of the hand mill light gage hot-rolled sheet capacity, competitive with lighter cold-reduced sheets from the continuous mills. This capacity consists of nonintegrated producers who depend upon large companies for sheet bars and on hand mills still in existence in the plants of the large steel companies. Such companies as Apollo Steel, Continental, Empire, Follansbee, Niles Rolling Mill, Reeves, and Mahoning have a combined capacity of about 790,000 net tons of light gage hot-rolled sheets per year, all of which comes from the hand mills.

Carnegie-Illinois and Bethlehem, as perhaps several other larger companies, still have considerable sheet rolling capacity in hand mills. That too will be taken out of operation because of technological developments and economics. Carnegie's hand mills at Vandergrift and Gary, and Bethlehem's at Sparrows Point, add up to a considerable tonnage capacity, the former two plants totaling about 100,000 tons a year and the latter believed to be considerably more.

Totaling the balance sheet of added capacity against hand mill capacity that will eventually go by the boards, it appears that the new capacity will be less than that which can conceivably be abandoned. About 800,000 tons additional new capacity will be added, plus an indeterminate amount gained by mill speed-ups. Hand mill capacity totals about 800,000 tons in nonintegrated mills alone and upward of 100,000 tons a year in the plants of big steel companies. Consequently, the present expansion program can take care of only that capacity that may be abandoned during the next five years.

TINY TIMS: A Navy F6F plane flies with two "tiny tims," largest aircraft rockets developed by the United States during the war, mounted under its wings. These rockets give the plane the punch of a 12-in. gun.



Enigma Variations

THERE are clearly storms ahead for the Security Council. The Russian request for a 16-day postponement of the discussion on Iran will raise the first storm, which will rage over the thorny question whether such a request is a matter of substance, in which the veto operates, or merely of procedure. But even if this can be amicably settled, it is only the preliminary hurdle. Either next week, or two weeks later, UNO is likely for the first time to be confronted with a recalcitrant major power. As the whole world knows, UNO's machinery is not designed for dealing with differences between the Big Three. Are the statesmen for that reason to evade the issue? Or should they try and grapple with it? And if so, how.

The last fortnight has been noteworthy for news not only of unexpected Russian troop movements in northern Persia, but also of speechmaking in a profusion that has tended to blur the main outlines of next week's problem. It is desirable to abstract from this wealth of sound the facts that will have a bearing on next week's meeting. The first of these is that Russia is still silent on the matter of two broken engagements—that to retire from Manchuria by Feb. 1 and from Persia by Mar. 2—and that the Red Army is saber-rattling in northern Persia. The second is that American policy has greatly hardened in the last two weeks. It is Mr. Byrnes, not Mr. Bevin, who is taking the lead in asking questions about the Red Army's movements in Persia and in renewing pledges to Teheran of full support in the event of a fresh Persian appeal to UNO.

The outlook for the Security Council meeting therefore hangs as has now become usual, upon the motives and methods of Russian policy. To all appearances, the aim of this policy is security along all frontiers of the Soviet Union, to be sought by the old-fashioned imperialist means which Soviet Russia once ostentatiously aban-

doned, and which it must therefore now resume by retaking the old Czarist strong points.

THERE is very little room left for doubt that Russian policy goes at least as far as this in its aims. But the methods of pursuing it are strangely mixed. One possible method would be to act within the framework of UNO by seizing every opportunity—and they are not few—of driving a wedge between London and Washington and thus preventing a unanimous condemnation by the outside world. This seemed for some time to be the major Russian tactic. It explains the steady belaboring of the weaker of the two, London, for its actions in India, Indonesia, Egypt, Greece and elsewhere. Hence also a recent series of somewhat naive broadcasts, chiefly in English, on "the old tradition of Russo-American friendship" and on "Anglo-American conflicts of interest," and the eagerness with which Marshal Stalin in person underlined the complaint of Mr. Churchill's American critics that he was trying to drag the United States into war. The other possible method would have been to abandon any attempt to split the Anglo-Americans within UNO and to concentrate on splitting the world against them, whether in UNO or outside it. This policy would accept the inevitability of an Anglo-Saxon bloc and would build up a rival Soviet bloc by absorbing a number of small nations close at hand and flattering the nationalist aspirations of others still out of reach. Mr. Vyshinsky's conduct at the London sessions of the Security Council and the subsequent developments of Russian policy in Persia and Manchuria seem to be inspired by this second tactic. Thus two contradictory policies are pursued at once. The contradiction can be clearly seen in the relative emphasis on Manchuria and Persia. If the first policy were still the aim, the obvious tactic was to make concessions, or

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at least to appear concessive, in Manchuria and to do so in the full light of publicity, and then, when American opinion was suitably pleased about this, to move forward in the Middle East by the least visible and irritating methods, so that Britain would be forced into the role of the importunate alarmist disturbing the happy dream of Russo-American amity. But in fact the almost exact contrary has been done. Soviet diplomacy has achieved the miracle of throwing Britain and America together, of compelling Mr. Byrnes to be firm and of affording Mr. Bevin the luxury of a back seat.

In any other country, this confusion of methods would be taken as evidence of an unresolved conflict of view between two schools of thought at the seat of power. And so it may be in Russia. A country's foreign policy is inescapably conditioned by its domestic policy. Every piece of internal evidence available points to the fact that the Russian civilian is tired of war and needs time to recover from prodigious blood letting and devastation. The proceedings of the current Supreme Council of the Soviet Union go to confirm this view.

SUCH is the short-term outlook and the one on the surface. To stress it is not to argue that it will govern the longer trend of Soviet policy. In the longer run the possibility of the emergence of a Bonapartist element cannot be ignored. For instance, if in the next few years Russian internal economy were to encounter difficulties and to become bogged down, dangerous social and political

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European News

(CONTINUED FROM PAGE 106)

liveries by rail during the preceding month. As for the coal requirements of the power and heating industries (gas and electricity), these are higher than before the war, as on the one hand consumption has been increasing during the last few years and, on the other hand, the drought during the last few months had reduced to a minimum the stocks of electric power works depending on coal. It will be seen that the iron and steel industry is in an unfavorable position when compared with mining, power and heat, and transport.

British Iron, Steel Shipments Increase

London

• • • Iron and steel shipments from Britain during February 1946 amounted to \$23,988,000. This figure shows an increase of \$21,064,000 on February last year and is \$10,092,000 more than the monthly average for 1938.

Largely as a result of relief shipments of plows to Burma, agricultural machinery exports nearly doubled those for January and trebled the 1938 average. Machine tools rose almost one half due to increased shipments to France and South Africa.

Total exports in February were valued at \$240,000,000 compared with \$228,400,000 in January. As the January figure included some accumulation of goods left over from the dock strike last fall and

the month had more days, the increase of \$11,600,000 is greater than it looks.

Coal exports fell by one quarter on the month to only 12 pct of the 1938 level. The number of new motor cars exported continued to expand. In February 2298 were shipped, against 1230 in January, but this figure is only three fifths of the 1938 total.

Reduced copper and tin exports accounted for a fall of about \$2,200,000 in nonferrous metals from January's high level, but even so they were double the second half of the 1945 average.

Charges Payrolls Padded

London

• • • Complaints have reached the British Government from responsible quarters that a large amount of concealed unemployment exists in Royal Ordnance and other factories manufacturing munitions. One contention is that 500,000 employees are being kept on the pay rolls when they should be freed for other work.

In order to remedy this state of affairs, two things have been decided. The first is that the Ministry of Supply and Aircraft Production must reduce its demands on manpower to conform with the low-level targets fixed by the government, and the second that the Ministry of Labor shall make a test inquiry, with about 100 firms in the sample for investigation. The Ministry of Labor and not the Ministry of Supply has chosen the factories to be subjected to inquiry.

First Public Auction Sale of Army Vehicles To Be Held in Britain

London

• • • The first public auction sale of Army vehicles will be held at Great Missenden, Bucks, soon, according to John Wilmot, Minister of Supply. Of the 24,000 vehicles for disposal throughout the sales, 16,500 are suitable for commercial and civilian use, and the remaining 7500 are special service types. The proportion of private cars is small, and no motorcycles are included.

At Great Missenden about 5600 vehicles, of all types and in all conditions, will be auctioned, and the sale will be open to dealers and private buyers. It will continue for four days a week until every vehicle has been sold. Cars in running order and those in the best condition will be sold singly to give the small private buyer a chance; the rest will be sold in lots. Prices will not be controlled, and there will be no sort of guarantee. The question of petrol to drive the cars away is under consideration.

Mr. Wilmot emphasized that the decision to sell by auction was to augment the reconditioning plan which has been operating through the Society of Motor Manufacturers and Traders since 1942. Under this plan approximately 100,000 vehicles have been sold only to the trade, and passed on to private buyers only after thorough overhaul, at controlled prices and with a three months' guarantee.

Temporary Houses in Great Britain

	Preparation of sites by Local Housing Authorities				Erection and completion of houses			
	Sites approved	Sites acquired	Sites developed	Sites being developed at end of period	Hulls produced	Hulls imported from U.S.A.	Houses completed	Houses under construction at end of period
To 31 December 1945.....	139,888	125,737	71,256	28,765	25,518	8,150	9,376	13,556
1946 January.....	3,488	7,732	6,239	27,088	7,446	.....	3,375	15,546
Total to end of January.....	143,376	133,469	77,495	27,088	32,964	8,150	12,751	15,546

Source: Health Dept. and Ministry of Works.

French Manufacturers Reform Organization For Liaison Purposes

Paris

• • • The General Federation of Employers (approximate French equivalent of the National Assn. of Manufacturers), dissolved by the Germans at the end of 1940, has recently been replaced by a National Federation of Employers. The federation had not been set up following the liberation, but had been replaced by a representative committee, which functioned until a recent meeting of 150 representatives of principal trade associations formed the new group.

The organization is to act as a liaison group between the associations it represents, and to represent them in turn in relations with the government and with the organizations of employees. It is emphasized that the groups which will belong to the new federation will retain their individual activities, and their rights to express their views within the framework of the general policies agreed upon in advance.

The meeting decided to set up a committee of 52 persons to control the operation of the new group, to be constituted as follows:

28 nominated by the national trade associations.

10 representing the most important regional trade organizations.

7 representing the General Federation of Small & Medium Industries.

7 nominated by the above group.

The following are among those nominated: M. Jean Raty, president of the iron ore syndicate; M. Ricard, vice-president of the general syndicate of foundrymen; M. Meunier, president of the mining and metallurgical association; M. Marcel Lambert, president of the syndicate of the engineering and metal industries. M. Pierre Fournier is chairman of the council.

Coal Retards Steel Output

London

• • • The British Iron and Steel Federation bulletin states that the steel output for February was not as high as it might have been owing to the general scarcity of coal throughout the country. Shortages were reported in Lancashire and the Midlands, and there were several cases of firms consequently working short time.

The position generally has since improved, and it is believed that no firms are now working short time because of a fuel shortage. Although stocks during the spring and summer should increase on the normal seasonal trend, it seems inevitable that another crisis will result next winter unless there is a marked improvement in the production figures.

French Coal Shortage Hampering Recovery

Paris

• • • At the inaugural meeting of the new Planning Council recently presided over by M. Gouin, the drive for more coal was discussed. M. Gouin repeated an appeal already made several times by the French Government to its partners in the occupation of Germany that French reconstruction was closely linked with the import of Ruhr coal, and that France needed another 1,000,000 tons per month from this source.

Coal at the moment is the key factor in plans for French economic recovery, but it is by no means the only one. Scarcity of labor is a very serious problem, and to realize the joint aim of M. Monnet and his fellow planners—raising French production by 1950 to a level 25 pct higher than that of 1929—labor specialists calculate that France needs from 1,000,000-2,000,000 more workers.

With the aid of 50,000 Polish miners who are soon returning to Poland, and of as many German miners, French coal production is back to the 1938 level. So far the French Government has negotiated with the Italian Government for the immigration of 20,000 Italian miners, and more are expected to follow. Mass immigration plus the assimilation of many German prisoners of war would appear to be the only solution of the labor shortage.

British Exports of Metals and Metal Manufactures

Monthly averages

	Iron and Steel			Electrical machinery	Machine tools	Textile machinery	Prime movers (not electrical)	Other machinery	New motor cars	New commercial vehicles and chassis	Pedal cycles
	Crude iron and steel	Rolling mill products	Finished goods								
	Thousand tons											Number		Thousands
1935.....	15.8	24.6	125.0	2.3	1.4	5.6	2.5	20.2	3,660	1,136	31.4
1936.....	11.4	22.8	120.7	2.6	1.2	4.4	2.6	20.9	4,267	1,408	43.3
1937.....	18.0	25.0	140.6	2.9	1.0	6.0	2.7	23.9	4,465	1,702	69.3
1938.....	11.5	20.3	97.6	3.7	2.0	5.9	2.4	24.3	3,677	1,189	48.0
1939.....	8.3	14.6	84.5	2.8	2.3	4.0	1.9	19.5	3,603	948	51.2
1940.....	3.7	10.5	60.5	2.4	0.9	2.8	1.3	13.5	1,721	759	41.4
1941.....	2.3	2.2	28.6	2.1	0.6	2.3	0.8	9.7	319	199	28.7
1942.....	1.0	2.6	13.1	2.0	1.7	1.6	0.5	7.3	5	25 ¹	8.9
1943.....	1.0	1.3	5.9	2.4	1.1	1.1	0.5	6.2	2	93	9.3
1944.....	0.6	2.0	12.4	4.8	2.7	1.2	0.6	6.9	2	322	9.4
1945.....	3.9	13.0	27.3	4.0	1.6	1.4	0.9	10.2	163	543	22.7

(¹) From 1942 excludes exports by government departments.

Industrial Briefs...

• **MALLEABLE PLANT SOLD** — Poor & Co. has sold its Vermillion Malleable Iron Works, Hoopston, Ill., to Deere & Co., farm equipment manufacturers. Operation of the plant was taken over by Deere on Apr. 1.

• **NEW ENGLAND OFFICE**—Allis-Chalmers Mfg. Co. has established a New England district office at 1607 Industrial Trust Bldg., Providence, R. I. R. H. Porterfield will be manager.

• **MERGER**—Jack & Heintz Precision Industries, Inc., Cleveland, has announced plans to merge with Eisemann Corp. of Brooklyn, manufacturers of magnetos and other products. Upon completion of the merger it is planned to carry on the business of Eisemann Corp. as a division of Jack & Heintz.

• **NEW DIVISION** — Reynolds Metals Co. has formed an ingot div. with headquarters in Louisville, Ky. Its function is the production and sale of virgin aluminum and casting alloy ingot as well as aluminum deoxidizers for the steel industry. R. G. Roshong will be product manager.

• **NEW STEEL SERVICE CO.**—Edward P. Geary, formerly assistant vice-president in charge of sales of the Rustless Iron & Steel Corp., has announced the formation of Geary Stainless Steel Co., sales service engineers, with headquarters in Baltimore, to handle the sales of stainless steels in all forms.

• **OPENS NEW OFFICE**—Ferro Enamel Corp., Cleveland, has announced the opening of a Detroit office to better serve its customers in that territory. The new office is in charge of Sylvester N. Smith, recently appointed Detroit district manager of Ferro and will be in the Ford Bldg. Ferro Enamel is building a new branch factory at Los Angeles and has plans for the erection of a new plant in Mexico.

• **BUYS BOILER CO.**—The National Electric Welding Machine Co., Bay City, Mich., has bought the facilities of the State Boiler Co., and will use the building to house its nonferrous foundry and pattern shop.

• **MEMBERSHIP INCREASES** — During the past 15 months membership in the Machinery Dealers' National Assn. has increased over 60 pct, according to R. K. Vinson, executive director. There are now members in 45 cities and 29 states.

• **SELLS PLANT** — Clayton & Lambert Mfg. Co. has sold its local plant to the Navy Dept. as a standby arsenal facility, and the concern will transfer its executive offices and primary manufacturing activities to Louisville, Ky., where it recently bought a factory.

• **TO REPRESENT**—Welding Engineering Sales Corp., New York, has been appointed exclusive representatives for Precision Welder & Machine Co. of Cincinnati, handling a complete line of resistance welding machines.

• **EXPANDING** — Weddell Tools, Inc., Rochester, N. Y., have consolidated their sales and manufacturing departments. A three-story brick building of 8500 sq ft capacity, has been acquired. Ferd Luyben is works manager.

• **NEW COMPANY**—Ohio Moulding Co., Cleveland, plans to fabricate stainless steel mouldings for use in buildings and on various manufacturers' items and will be located in a new building nearing completion.

• **ACQUIRES PLANT**—The Twin Coach Co., Kent, Ohio, has purchased a plant formerly operated by Curtiss-Wright Co. at Buffalo airport. The plant and equipment were obtained from the WAA for about \$1,000,000, the company reported.

Extends Time on Bids For S. Chicago Plant

Washington

• • • The War Assets Administration has extended from Apr. 1 to May 1 the time limit for bids on the South Chicago steel plant presently operated by the Republic Steel Corp. The plant has four 225 ton openhearth and nine 70 ton electric furnaces.

WAA said that this action was taken to permit other bidders to have adequate time in which to submit proposals. Similar action was taken recently in connection with the Geneva steel bids.

WAA has requested that the bids for the purchase or lease of the Chicago plant be sealed when forwarded to the President of WAA. Prior to Apr. 1 open bids were requested. This plant has a rated capacity of 750,000 tons a year.

WAA also has announced that the Omaha Steel Works, Omaha, Nebr., which cost the Federal Government \$641,000 to design and equip to produce wartime steel castings, will be sold or leased.

The \$785,000 metal reclamation plant at Rome, N. Y., where Revere Copper & Brass, Inc., produced in wartime 7000 tons of brass scrap annually is being placed on the market, for sale or lease, by WAA.

New Iron Pricing Policy

Washington

• • • Under Amendment 12, MPR 244, increase of maximum prices for some gray iron castings may be granted a seller by OPA provided such increase is accompanied by a compensatory decrease in other items so that the overall price level is not affected.

However, the price may not be above a level maintaining a normal price relationship in the gray iron castings which the applicant sells. The reduction in other prices must equal the total dollar amount of the adjustment granted in excess of the price otherwise allowable under the regulation.

Amendment 10, MPR 241, extends the same adjustment provision to malleable iron castings. Both amendments are effective as of March 22.

Construction Steel...

New York

• • • Fabricated steel awards this week included the following:

- 4150 Tons, Pontiac, Mich., engine plant and engineering building for GMC Truck & Coach Div. of General Motors, to Whitehead & Kales Co., Detroit.
- 4150 Tons, Governors Island, N. Y., tunnel shaft to Bethlehem Steel Co.
- 2150 Tons, Massillon, Ohio, bridge to Mt. Vernon Bridge Co.
- 1000 Tons, Detroit, Briggs Mfg. Co., office building and runways, to Whitehead & Kales Co., Detroit.
- 950 Tons, Hammond, Ind., Keyes Fibre Co. plant, to American Bridge Co.
- 750 Tons, Texas City, Tex., Carbide & Carbon Chemicals Corp., buildings, to Mosher Steel Co., Houston, Tex.
- 525 Tons, various locations, Okla., bridges, to Virginia Bridge Co., Roanoke, Va.
- 500 Tons, LaCrosse, Wis., Northern State Power Co., extension to steam plant, to Milwaukee Bridge Co., Milwaukee.
- 500 Tons, Findlay, Ohio, National Automotive Fibres Co., factory building, to R. C. Mahon Co., Detroit.
- 480 Tons, Schenectady, N. Y., alteration to building 144 General Electric Co., to Belmont Iron Works.
- 441 Tons, Redding, Calif., fabricated steel for 230-kv switchyard and transformer circuits, Keswick Power Plant, Central Valley Project, Spec. 1160, to Bethlehem Pacific Coast Steel Corp., San Francisco.
- 400 Tons, Dayton, Ohio, Moraine Products Div. of General Motors, new factory building, to R. C. Mahon Co., Detroit.
- 400 Tons, Westmoreland County, Pa., Pennsylvania Dept. of Highways, bridge, to Latrobe Construction Co.
- 252 Tons, Tracy, Calif., steel beam span bridge across Paradise Cut, California Div. of Highways, through Stockton Construction Co., to California Steel Products.
- 250 Tons, Albion, Mich., Union Steel Products Co., factory building, to Yeager Bridge & Iron Co., Port Huron, Mich.
- 217 Tons, Los Angeles, extension to building, Norris Stamping & Mfg. Co., to Bethlehem Pacific Coast Steel Corp., San Francisco.
- 200 Tons, Philadelphia, extension to Chilton Co. building, to American Bridge Co., through Erwin and Leighton.
- 180 Tons, Cameron County, Pa., Pennsylvania Dept. of Highways, bridge, to H. T. Osborn & Co., Franklin, Pa.
- 165 Tons, Los Angeles, Santa Fe Railway beam spans, to Jos. T. Ryerson & Son, Inc., Chicago.
- 130 Tons, Montgomery County, Pa., highway bridge, J. F. Keeler to Phoenix Bridge Co., Phoenixville, Pa.
- 110 Tons, Washington, D. C., church and rectory, to Reliance Steel Co., Pittsburgh.

• • • Fabricated steel inquiries this week included the following:

- 2550 Tons, Garrison Dam, N. D., construction bridge, Garrison Reservoir.
- 2500 Tons, Rochester, N. Y., Eastman Kodak Co., power plant extension.
- 1500 Tons, Coram, Calif., three drum gates, Shasta Dam.
- 1500 Tons, Fort Gibson Dam, Okla., construction trestle, United Construction Co.
- 1250 Tons, Texas City, Tex., Carbide & Carbon Chemicals Corp., pipe racks.
- 1200 Tons, Ann Arbor, Mich., University of Michigan, general service building.
- 1000 Tons, Middletown, Pa., extension to Middletown power station, Gilberts, Associates, Inc.
- 1000 Tons, Utica, N. Y., Continental Can Co., factory.
- 905 Tons, Rochester, Iowa, state highway bridge.
- 800 Tons, Victor, Fla., plant for Victor Chemical Co., Stone & Webster Engineering Corp., Boston, engineers.
- 500 Tons, Hunters Point, Calif., superstructure for ordnance shop, Naval Shipyard, Spec. 17152, NOY 12968.

370 Tons, Vienna, Md., extension to Vienna station, Eastern Shore Public Service Corp., through United Engineers and Constructors.

360 Tons, Norristown, Pa., Sacred Heart Hospital, building.

336 Tons, Emery & Grand Counties, Utah, steel and concrete bridge on U. S. No. 50, east of Green River (F-75) (9), State Road Commission, Salt Lake City, to April 10.

315 Tons, Columbus, Ohio, addition to Pennsylvania RR engine house.

300 Tons, Philadelphia, roller skating rink.

238 Tons, Coram, Calif., pen stock coaster gates, Shasta Dam.

210 Tons, Victor, Fla., furnace building, Stone & Webster.

200 Tons, Milwaukee, Wis., and Lawler, Iowa, bridge repairs, A-315½, beam span for bridge R-208, Milwaukee Railroad.

200 Tons, Amityville, N. Y., building for Keller, Dorian Corp.

200 Tons, Danvers, Mass., Sylvania Electric Products, Inc., warehouse.

150 Tons, Newport, Vt., state bridge.

150 Tons, Jenkintown, Pa., Bell Telephone Co., building.

150 Tons, Trenton, N. J., addition to Trenton Pottery Co.

148 Tons, Plumas County, Calif., steel girder bridge across Hamilton Branch (II-Plu-523), California Div. of Highways, Sacramento, to April 24.

• • • Reinforcing bar awards this week included the following:

750 Tons, Minneapolis, Coca-Cola bottling plant to Cowin & Co., Minneapolis.

550 Tons, Toledo, Ohio, Libbey-Owens-Ford Glass Co., tanks to Carnegie-Illinois Steel Corp.

500 Tons, Birmingham, 14 silos and other building, Lone Star Cement Co., to Ceco Steel Products Corp.

370 Tons, Newport, Ky., flood wall unit No. 1, to Ben Tom Supply Co.

350 Tons, Ottumwa, Iowa, water works to Ottumwa Bridge & Construction Co.

300 Tons, Peoria Heights, Ill., Pabst Brewing Co., plant, to Jos. T. Ryerson & Son, Chicago.

• • • Reinforcing bar inquiries this week included the following:

6500 Tons, Chicago, sewage works.

5025 Tons, Miscellaneous bars, Inv. F-38, 490-A, Bureau of Reclamation, Denver, to April 9.

2000 Tons, Cartersville, Ga., Altoona Dam and power station. Bids due Apr. 16.

1200 Tons, Hunters Point, Calif., superstructure for ordnance shop, Naval Shipyard, Spec. 17152, NOY 12968.

800 Tons, Chicago, Goldblatt Bros., warehouse.

775 Tons, Battle Creek, Mich., paper mill.

750 Tons, Plymouth, Wis., Borden Co., cheese plant (previously reported as Bowman Dairy Co., plant).

689 Tons, Miscellaneous bars, Inv. F-38, 499-A, Bureau of Reclamation, Denver, to Apr. 8.

400 Tons, Macon, Ga., Macon Craft Corp., James Stewart, New York, contractor. Quoted Mar. 21, not closed.

• • • Sheet piling and bearing pile inquiries this week included the following:

1200 Tons, Sheet piling and 600 tons, bearing piles, Ohio locations, State Highway Dept.

Coming Events

Apr. 3-5 Society of Automotive Engineers, national aeronautical meeting, New York.

Apr. 8-12 American Society of Tool Engineers, annual convention and exposition, Cleveland.

Apr. 10-13 Electrochemical Society Inc., spring congress, Birmingham.

Apr. 22-27 National Plastics Exposition, New York.

Apr. 25-26 American Institute of Mining and Metallurgical Engineers, openhearth, blast furnace and raw material conference, Chicago.

Apr. 28-May 2 American Ceramic Society, annual meeting, Buffalo.

Apr. 29-30 National Welding Supply Assn., bi-annual convention, Dayton.

May 6-7 Assn. Iron & Steel Engineers, spring conference, Chicago.

May 6-10 American Foundrymen's Assn., golden jubilee convention and exposition, Cleveland.

May 29-31 Machinery Dealers National Assn., Atlantic City, N. J.

June 2-7 Society of Automotive Engineers, summer meeting, French Lick, Ind.

June 3-5 American Gear Manufacturers Assn., annual meeting, The Homestead, Hot Springs, Va.

June 13 Metal Powder Assn., spring meeting, New York.

June 17-18 American By-Product Coke Institute, first annual meeting, Seaview Country Club, Absecon, N. J.

June 17-20 American Electroplaters Society, annual convention, Pittsburgh.

June 24-28 American Society for Testing Materials, annual meeting, Buffalo.

Oct. 3-5 National Electronic Conference, Chicago.

MACHINE TOOLS

... News and Market Activities

Tool Builders Temporarily Pessimistic

••• Like straws in the wind, a number of significant trends are apparently pointing up the direction of the machine tool industry, which aside from the possibility of immediate price relief, seems destined for temporary financial doldrums.

Among the builders, many companies have more inquiries than they have business, and more companies are signifying their willingness to take on outside work; in other words, work other than machine tool building. Thus, excess capacity comes into sharp focus. Some companies are worried about business going down for several months in succession, and past performance suggests that the indus-

See pp. 120, 124, 126, 127 for additional Tool News.

try as a whole cannot make up a March like the one just ended unless something unusual and unforeseen occurs.

Such a situation seems tailor-made for the licensing of machine tool rebuilders, a development regarded by some trade quarters as a strong possibility under the revitalized War Assets Administration disposal program. At the last Industry Advisory Committee meeting, builders' representatives had broached the suggestion that manufacturers be permitted to purchase from the Government tools of their own make which were in long supply at discount for rebuilding. This suggestion was frowned upon by WAA, it is understood, but the licensed rebuilder program, which would embrace concerns principally engaged in rebuilding as well as manufacturers, may prove more acceptable.

This suggestion would have particular importance in the export market, according to some observers, where manufacturers are anxious to have all tools of their make which are sold give satisfactory service. In fact, only under such a program would some of the foreign buyers consider used tools, either from the Government-owned pool, or from the normal channels of trade.

Shipments may be up in April and May, according to some observers, but with the domestic back-

log of orders in its present weakened condition, sizeable new order volume is the recommended restorative. Big shipments, at the present rate of new order inflow, would whittle the current backlog to a shadow in short order.

Reports from many industrial areas throughout the country indicate that spotty conditions prevail. In the East, new domestic business is slow and confined in many cases, to improved special purpose tools and replacements. The large number of Government-owned surplus machine tools are the biggest competitor the builders and dealers have. Echoing the inquiry situation generally, machine tool buyers in the east are interested in new labor and cost saving machines, and anticipate good business as soon as the labor atmosphere has cleared and prices of manufactured goods have been established on a profit-paying basis. Some New England machine tool builders have a better-than-prewar backlog of export business, particularly from South America and France.

In Cincinnati, domestic ordering is only fair, and while substantial foreign business is in the offing, strikes continue to be a disturbing feature. A few plants are directly affected by the strike and production is virtually stopped. Other builders are holding up assembly because of the inability to get such items as antifriction bearings, motors, and electrical equipment. In a few instances, probably to help a buyer get into production, used or test equipment is being supplied with the intention, of course, of making changes later.

In Cleveland, an expose of graft and bribery in the disposal of Government-owned surplus machine tools through the local office of the WAA hit the machine tool industry and trade like a bombshell. Washington officials have an FBI report before them that will be sent back to Cleveland shortly for Grand Jury consideration, that is expected to corroborate charges that sources in the trade have leveled at the local WAA office.

Included in the report will be results of the investigation of charges

that some surplus machines were sold before they were legally declared surplus; that some machines were declared scrap and sold at scrap prices when they were, valuable and reappeared in the trade at normal used machine prices; that some agency employees destroyed or lost priority records for desirable machines and sold them to buyers not entitled to them.

FBI findings, some sources allege, will go far to explain the apparent failure of most of the machine tool dealers in the Cleveland area who were in business before the war to make much progress selling Government-owned surplus tools.

In Chicago, plans for the sale of machine tools at the mammoth Dodge-Chicago plant have been halted. The local office of WAA has been directed by headquarters in Washington to hold in abeyance the sale of the tools which comprise the largest single group in any plant in the country, according to some observers.

The stop order is particularly significant as the Dodge-Chicago tool sale had been proposed as a guinea pig to test out the effectiveness of a look-see-buy basis in which customers would be admitted to the plant over a considerable period of time and allowed to buy the tools on the site.

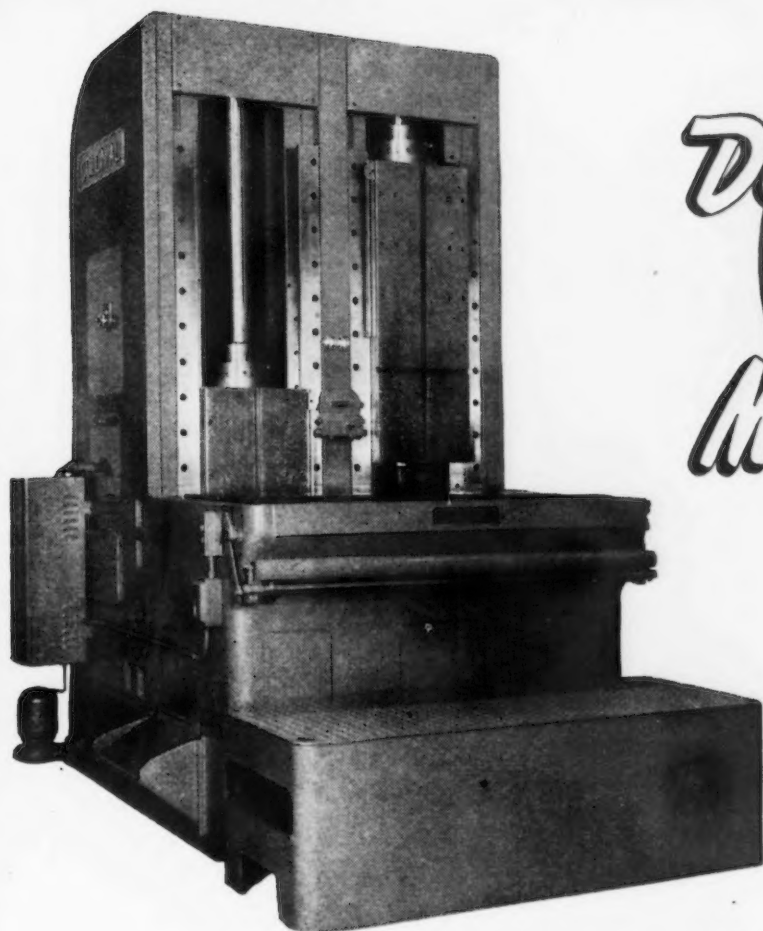
Machine Tools Lead Sales

Washington

••• Cumulative sales of machine tools through Feb. 28 topped all other groups of capital and producers goods, sales for the month showing a continued increase under the Clayton formula.

Used machine tools costing more than \$135 million were sold at close to prevailing market prices or about \$72 million. In point of dollar value, lathes were the largest selling item, with milling, grinding, boring and drilling machines next in that order.

Second most important in sales volume is the steel group items of which about \$59 million worth were sold for approximately \$32 million. Steel bars, sheets and rolled plates showed greatest demand.



Designed to Cut
TODAY'S
Machining Costs

At Left: Dual ram machine without tooling.

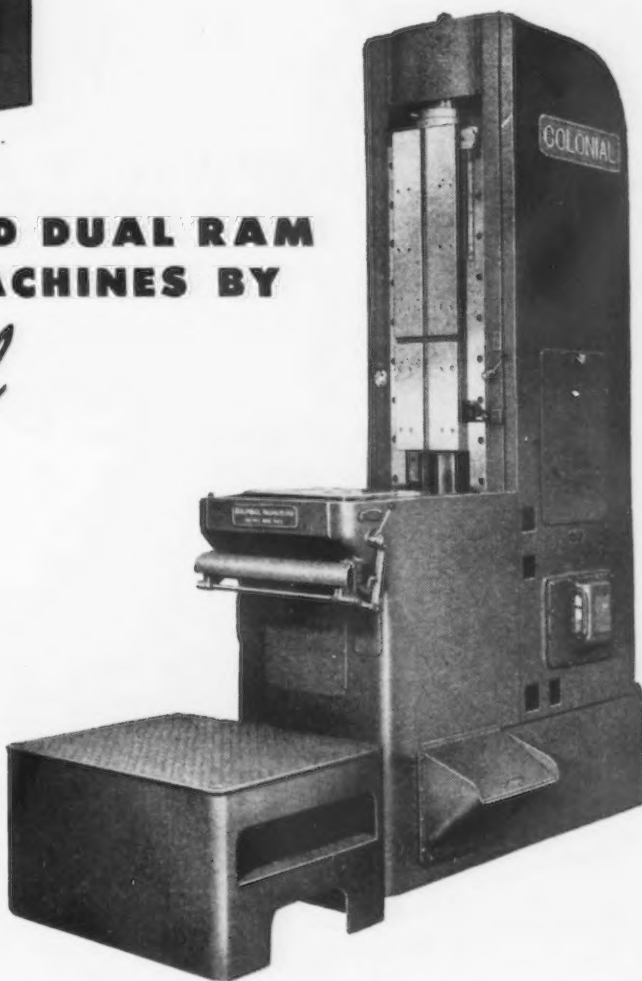
Below: Typical single ram type.

**THE IMPROVED SINGLE AND DUAL RAM
SURFACE BROACHING MACHINES BY**


Colonial

Even before the war, Colonial Hydraulic Single and Dual ram surface broaching machines had become the leaders in their field—mass production machining or outside surfaces at the lowest cost per piece.

Excess capacity for heavy duty jobs, maximum freedom from service trouble in continuous operation, rigidity to prevent deflection and maintain accuracy, provision for shuttling or other forms of automatic retracting loading tables, speed adjustable to meet the specific need for any given job, dual safety controls plus emergency knee-bar stop. These are just a few of the features built into every Colonial Single and Dual Ram Machine, whether they be of light tonnage with *minimum* stroke or heavy duty with *maximum* 66" stroke.



colonial BROACH COMPANY
DETROIT 13, U.S.A.

Broaches  Broaching Machines - Broaching Equipment

NONFERROUS METALS

... News and Market Activities

Reductions in Minimum Aluminum Scrap prices Announced by WAA

Washington

••• War Assets Administration has announced reduction in minimum price of certain classes of aluminum scrap following conferences with committees of smelters and dealers.

Air-cooled engine heads with steel cylinder barrels attached were removed from Class D and placed in a separate Class F at a minimum price of 2¢ per lb. Minimum for Class D is reduced from 4¢ to 2½¢ per lb.

To facilitate movement of small lots of the several grades, a minimum of ½¢ per lb less than the established price is allowed where the lot available for sale at any one place is less than 30,000 lb.

U. S. Rates 36 Pct World Tin Supply

Washington

••• With the United States heading the list with 6650 gross tons, the Combined Tin Committee has announced final allocations of pig tin aggregating 18,300 tons for the first half of 1946. Ranking next is France with 4260 tons, followed by the United Nations and Rehabilitation Administration, 3000 tons and Canada, 1500 tons. Other allocations in gross tons were: India, 960; Switzerland, 400; Netherlands, 360; Middle East, 350; Norway, 220; and South America, Sweden and Denmark, 200 each.

Tin concentrates and products containing large percentages of tin are not covered under the allocation agreement.

Additional imports into the United States in the second half of 1946, plus secondary recovery from scrap and tin from the United States Government stockpile are expected to make approximately 90,000 tons of tin available to American industry.

In general, the tonnages allocated will be made available from United Kingdom or Belgian

sources of supply and (in the case of South America) from the Texas smelter.

However, in the case of Switzerland, 80 long tons may be obtained from the Netherlands, under the terms of a trade agreement between the two countries. Under the 6650-ton allocation to the United States, 2000 long tons of this amount may be obtained from Siam and 150 long tons from the Netherlands East Indies.

Canadian Base Metals In Increased Demand

Toronto

••• Demand for Canadian base metals is gaining in volume at a rapid rate, and with prospects for world shortage of these materials Canadian producers are assured of markets for their entire output extending well into 1947. Producers of copper, lead and zinc in this country are being pushed to meet requirements. It is estimated that domestic requirements for copper this year will total 60,000 tons against prewar Canadian consumption of about 35,000 tons. The Canadian copper price is 11.5¢ a lb, compared with world price of 13.2¢. It is reported that many Canadian consumers have been buying well in excess of requirements and stockpiling to take advantage of any possible increase in price. However, this condition does not apply to primary fabricators, but is chiefly in connection with makers of copper-brass articles.

British demand for Canadian copper has been increasing rapidly and it is stated that orders have been received from this source covering the remainder of this year.

Demand for zinc also is holding at a brisk pace.

The market for lead, domestic and export, is well in excess of supply and while no special effort has been made to curtail consumption in Canada, it is stated that Great Britain and the United States are reducing the use of lead compounds in gasoline.

To Open Sealed Bids For Aluminum Scrap

Washington

••• Sealed bids for prepared aluminum scrap in the shape of crushed airframes weighing 32 million lb will be opened by the War Assets Administration on an "as is" basis in Washington on Apr. 8.

Approximately 28 million lb of the scrap are located at the airfield at Altus, Okla., while the remainder is stored at Bush Field, Augusta (Nixon), Ga. WAA said that material similar to that being offered for sale may be inspected at either Hatbox Field, Muskogee, Okla., or Bush Field.

Rescues Lead From Planes

Washington

••• Approximately 1 million lb of lead is expected to be recovered by the War Assets Administration from surplus bombers, fighters and other tactical aircraft, that agency has announced. These planes have no further use and are being scrapped and salvaged by WAA so that aluminum and other metals can be made available for civilian uses.

The lead was used as control surface counterweights on the planes and some types yield over 100 lb of the metal. The lead is turned over to the WAA Metals Div. which sells it on an allocation basis to commercial users.

Reports U.K. Copper Use

London

••• Virgin copper consumption in the United Kingdom in February, 1946, amounted to 24,400 tons, compared with 31,090 tons in January, according to the British Nonferrous Metals Federation.

Consumption of scrap copper rose from 10,640 to 14,550 tons. Unalloyed copper products accounted for 21,160 tons against 22,840, while brass and other copper alloys absorbed 16,690 tons of copper compared with 17,560 tons.

NONFERROUS PRICES

Primary Metals

(Cents per lb, unless otherwise noted)

Aluminum, 99+%, del'd (Min. 10,000 lb)	15.00
Aluminum pig	14.00
Antimony, American, Laredo, Tex. ..	14.50
Beryllium copper, 3.75-4.25% Be; dollars per lb. contained Be....	\$14.75
Beryllium aluminum, 5% Be; dollars per lb. contained Be	\$30.00
Cadmium, del'd	90.00
Cobalt, 97-99% (per lb).....	\$1.50 to \$1.57
Copper, electro, Conn. valley	12.00
Copper, electro, New York	11.75
Copper, lake	12.00
Gold, U. S. Treas., dollars per oz.	\$35.00
Indium, 99.8%, dollars per troy oz.	\$ 2.25
Iridium, dollars per troy oz.	\$90-\$100
Lead, St. Louis	6.35
Lead, New York	6.50
Magnesium, 99.9 + %, carlots	20.50
Magnesium, 12-in. sticks, carlots ..	27.50
Mercury, dollars per 76-lb flask, f.o.b. New York	\$104 to \$107
Nickel, electro	35.00
Palladium, dollars per troy oz.	\$24.00
Platinum, dollars per oz.	\$35.00
Silver, New York, cents per oz.	70.75
Tin, Straits, New York	52.00
Zinc, East St. Louis	8.25
Zinc, New York	8.65
Zirconium copper, 6 pct Zr, per lb contained Zr	6.00

Remelted Metals

(Cents per lb)

Aluminum, No. 12 Fdy. (No. 2) 10.00 to 10.50	
Aluminum, deoxidizing	
No. 2, 3, 4	8.25 to 10.50
Brass Ingot	
85-5-5-5 (No. 115)	13.25
88-10-2 (No. 215)	16.75
80-10-10 (No. 305)	16.00
No. 1 Yellow (No. 405)	10.25

Copper, Copper Base Alloys

(Mill base, cents per lb)

	Extruded Shapes	Rods	Sheets
Copper	20.87	20.87	20.87
Copper, H.R.	17.37	17.37	17.37
Copper drawn	18.37	18.37	18.37
Low brass, 80%	20.40	20.16	20.16
High brass	19.48	19.48	19.48
Red brass, 85%	20.61	20.36	20.36
Naval brass	20.37	19.12	24.50
Brass, free cut	15.01	15.01	15.01
Commercial bronze, 90%	21.32	21.07	21.07
Commercial bronze, 95%	21.53	21.28	21.28
Manganese bronze ..	24.00	24.00	24.00
Phos. bronze, A, B, 5%	36.50	36.25	36.25
Muntz metal	10.12	18.87	22.75
Everdur, Herculeoy ..	25.50	26.00	26.00
Olympic or equal ..	28.75	26.50	26.50
Nickel silver, 5%	19.12	19.12	19.12
Architect bronze	19.12	19.12	19.12

Aluminum

(Cents per lb, base, subject to extras for quantity, gage, size, temper and finish)

Tubing: 2 in. OD by 0.065 in. wall: 2S-1/2H, 40¢; 52S-O, 61¢; 24S-T, 67.5¢; base, 2000 to 4999 lb.

Plate: 1/4 in. and heavier: 2S, 3S, 21.2¢; 52S, 24.2¢; 61S, 22.8¢; 24S, 24S-AL, 24.2¢; 75S, 75S-AL, 29.5¢; base, 30,000 lb and over.

Flat Sheet: 0.136 in. thickness: 2S, 3S, 22.7¢; 52S, 26.2¢; 61S, 24.7¢; 24S-O, 24S-OAL, 26.7¢; 75S-O, 75S-OAL, 31.7¢; base, 30,000 lb and over.

Extruded Shapes: factor determined by dividing the perimeter of the shape by its weight per foot. For factor 1 through 4: 2S, 3S, 25.5¢; 17S, 31¢; 24S, 34¢; 53S, 28¢; 61S, 28.5¢; 63S, 26.5¢; 75S, 39¢; base 2000 to 5000 lb.

Wire, Rod and Bar—screw machine stock, rounds, 11S-T3, 17S-T, 1/4 in., 28.5¢; 1/2 in., 26¢; 1 in., 24.5¢; 2 in., 23¢; hexagons, 1/4 in., 34.5¢; 1/2 in., 28.5¢; 1 in., 2 in., 25.5¢; base 5000 lb.—Rod: 2S, 3S, 1 1/4 to 2 1/2 in. diam., rolled, 23.5¢; cold-finished, 24¢; base 30,000 lb. Round

Wire: drawn, coiled, B & S gage 17-18: 2S, 3S, 33.5¢; 56S, 37.5¢; B & S gage 23: 2S, 3S, 41.5¢; 56S, 44.5¢; 10,000 lb base; B & S gage 00-1: 2S, 3S, 21¢; 56S, 23¢; B & S 15-16: 2S, 3S, 32.5¢; 56S, 36.5¢; base 30,000 lb.

NONFERROUS SCRAP METAL QUOTATIONS

†(OPA basic maximum prices, cents per lb., f.o.b. point of shipment, subject to quality, quantity and special preparation premiums—other prices are current quotations)

Copper, Copper Base Alloys

OPA Group 1†

No. 1 wire, No. 1 heavy copper ..	9.75
No. 1 tinned copper wire, No. 1 tinned heavy copper	9.75
No. 2 wire, mixed heavy copper ..	8.75
Copper tuyeres	8.75
Light copper	7.75
Copper borings	9.75
No. 2 copper borings	8.75
Lead covered copper wire, cable ..	6.00*
Lead covered telephone, power cable	6.04
Insulated copper	3.00*

OPA Group 2†

Bell metal	15.50
High grade bronze gears	13.25
High grade bronze solids	11.50*
Low lead bronze borings	11.50*
Babbitt lined brass bushings	13.00
High lead bronze solids	10.00*
High lead bronze borings	10.00*
Red trolley wheels	10.75
Tinny (phosphor bronze) borings ..	10.50
Tinny (phosphor bronze) solids ..	10.50
Copper-nickel solids and borings ..	9.25
Bronze paper mill wire cloth	9.50
Aluminum bronze solids	9.00
Soft red brass (No. 1 composition) ..	9.00
Soft red brass borings (No. 1) ..	9.00
Gliding metal turnings	8.50
Contaminated glided metal solids ..	8.00
Unlined standard red car boxes ..	8.25
Lined standard red car boxes ..	7.75
Cocks and faucets	7.75
Mixed brass screens	7.75
Red brass breakage	7.50
Old nickel silver solids, borings ..	6.25
Copper lead solids, borings	6.25
Yellow brass castings	6.00
Automobile radiators	7.25
Zincy bronze borings	7.00
Zincy bronze solids	8.00

OPA Group 3

Fired rifle shells	8.00
Brass pipe	7.25
Old rolled brass	6.75
Admiralty condenser tubes	7.25
Muntz metal condenser tubes	6.75
Plated brass sheet, pipe reflectors ..	6.25
Manganese bronze solids	5.50 ¹
Manganese bronze solids	4.50 ²
Manganese bronze borings	4.00 ¹

OPA Group 4

Refinery brass	4.50*
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*Price varies with analysis. ¹Lead content 0.00 to 0.40 pct. ²Lead content 0.41 to 1.00 pct.

Magnesium

Sheet, rod, tubes, bars, extruded shapes subject to individual quotations. Metal turnings: 100 lb. or more, 46¢ a lb.; 25 to 90 lb., 56¢; less than 25 lb., 66¢.

Brass Mill Scrap†

Briquetted cartridge brass turnings	8.625
Cartridge brass turnings, loose	7.875
Loose yellow brass trimmings	7.375

Aluminum*

Plant scrap, segregated

2S solids	8.50 to 9.00
Dural alloys, solids 14, 17, 18, 24S, 25S	5.00 to 5.50
turnings, dry basis	3.50 to 4.00
Low copper alloys 51, 52, 61, 63S solids	7.00 to 8.00
turnings, dry basis	5.00 to 6.50

Plant scrap, mixed

Solids	5.25
Turnings, dry basis	4.00

Obsolete scrap

Pure cable	8.00
Old sheet and utensils	7.50
Old castings and forgings	6.00
Pistons, free of struts	5.00
Pistons, with struts	4.50
Old alloy sheet	3.00 to 4.00

Magnesium*

Segregated plant scrap

Pure solids and all other solids, exempt	
Borings and turnings	1.50

Mixed, contaminated plant scrap

Grade 1 solids	3.00
Grade 1 borings and turnings	2.00
Grade 2 solids	2.00
Grade 2 borings and turnings	1.00

*Nominal.

Zinc

New zinc clippings, trimmings ..	6.50
Engravers, lithographers plates ..	6.50
Old zinc scrap	4.75
Unsweetened zinc dross	5.00
Die cast slab	4.50
New die cast scrap	4.45
Radiator grilles, old and new	3.50
Old die cast scrap	3.00

Lead

Deduct 0.55¢ a lb. from refined metal basing point prices or soft and hard lead including cable, for f.o.b. point of shipment price.

Nickel

Ni content 98+%, Cu under 1/2%, 23¢ per lb.; 90 to 98% Ni, 23¢ per lb. contained Ni.

ELECTROPLATING ANODES AND CHEMICALS

Anodes

(Cents per lb., f.o.b. shipping point in 500 lb. lots)

Copper, frt. allowed	
Cast, oval, 15 in. or longer	25 1/4
Electrodeposited	18 1/4
Rolled, oval, straight	19 1/4
Curved	20 1/4
Brass, 80-20, frt. allowed	
Cast, oval, 15 in. or longer	23 1/4
Zinc, cast, 99.99, 15 in. or longer ..	16 1/4
Nickel, 99 pct plus, frt. allowed	
Cast	47
Rolled, depolarized	48
Silver, 999 fine	
Rolled, 100 oz. lots, per oz.	80 1/4

Chemicals

(Cents per lb., f.o.b. shipping point)

Copper cyanide, 1-5 bbls.	34.00
Copper sulphate, 99.5, crystals, bbls.	7.75
Nickel salts, single, 425 lb. bbls., frt. allowed	13.50
Silver Cyanide, 100 oz. lots, per oz.	0.655
Sodium cyanide, 96 pct, domestic, 100 lb. drums	15.00
Zinc cyanide, 100 lb. drums	33.00
Zinc sulphate, 89 pct, crystals, bbls., frt. allowed	6.35

Tightness to Prevail; Supply Eases Slightly

New York

... With most of the scrap-producing plants back in operation throughout the country, production scrap, which has not been in the market for some time, is once more beginning to make an appearance. Not for long, however, because all offerings are immediately absorbed in the strong market. Cast scrap is particularly tight, especially so in view of the continued pig iron shortage, and foundries are finding it extremely difficult to keep cupolas in operation.

Government offerings are extremely meager these days, with consumers bidding ceiling prices for anything and everything being offered—unprepared and unpredictable.

The strong market is holding prices firm at the same levels that have been in existence for the past several months. With the demand to continue heavy for some time to come, no change in this situation is in the offing.

PITTSBURGH—The scrap supply shortage has not changed materially in this area, with buyers having to push for material. Mills are not in as bad shape as might be expected, but foundries and electric furnace operators are considerably worse off. There are not expected to be any real surpluses of scrap in the Detroit area that could come into Pittsburgh-Cleveland-Youngstown for at least another month, and Eastern consumers are taking most of the prepared scrap from yards along the Coast. Railroad lists are getting better, as are dealer sales. In the order of scrap shortage severity, it appears that Youngstown and Chicago are in the worst shape, particularly Youngstown. Remote scrap coming into Chicago has helped somewhat, and shipments to one consumer there have actually increased during the past week. The coal strike, which will effect steelmaking operations within a short time, may give the scrap buyers for mills a little breather and production scrap may be moving before the coal strike is actually settled.

CHICAGO—Consumption of all grades of openhearth and foundry scrap continues heavier than shipments. Production scrap has not yet reached normal, but yard activities are somewhat heavier. Possible relief may come following settlement of the coal strike when several blast furnaces now being withheld are blown in. The strike itself will have no

effect on buying with consumers anxious to accumulate all possible supplies.

PHILADELPHIA—Scrap continues in heavy demand, with mill inventories spotty and all consumers now accepting shipments since the end of the strikes in two mills last week. Cast scrap is needed badly and some foundries consider they may be forced to curtail operations as a result of the shortage. Luria Bros. was awarded 16,000 tons of shipyard scrap from Federal Shipbuilding at Kearny and it is reported that some plate was sold for export. China is reported to be actively seeking scrap in this market.

DETROIT—With the resumption of work in General Motors plants, a trickle of production scrap is beginning to come out which has not been in the market since last October. By the end of the month this is expected to do considerable to increase the Michigan supply. The advancing production at Ford Motor Co., too, is relieving demand from that quarter, inasmuch as large car and truck output at that point provides a considerable proportion of openhearth demands at the Rouge. Foundries are still very short of charging material, however, and the general situation is that demand still well overbalances supply, holding all prices firmly at ceiling.

BOSTON—Supplies of cast, stove plate and low phos have loosened up. Truck shipments to foundries the past week were the largest for any similar period in years, a lifesaver in view of continued pig iron shortage. Labor unrest still curtails production of borings and turnings. Improvement in heavy steel shipments is noted. It is still possible, however, to get \$2.50 a ton premium even on light drop trimmings, steel mills are so insistent on shipments.

NEW YORK—With practically all the scrap-producing plants back in operation in this area, it is hoped that supplies will soon be on the upgrade. Scrap movement is only fair, however, with a strong market existing for all grades, especially cast grades. Prices continue firm at ceiling.

BUFFALO—Market conditions were little changed this week, with a slow, irregular rise in the flow of industrial scrap, leaving much to be desired from the dealers' standpoint. They gained slight comfort from the prospect that more scrap will be charged in openhearth to maintain production because of the coal strike. Fabricators who are paying more for steel are talking higher prices for unprepared scrap, which adds to the processors' king-size headaches. The recent rail lists have been light, with much of the offerings going to the Valley, although two of the local mills took some heavy melting.

ST. LOUIS—With better weather prevailing in St. Louis, the movement of scrap iron to dealers and mills improved during the week. Railroad offerings also were on the increase. A dealers' survey revealed that cars in "automobile graveyards" are accumulating; owners say that scrap prices are too low to warrant the labor expenditure to process them. The coal strike has had no effect as yet on operations.

CINCINNATI—The iron and steel scrap market in this area gets tighter each day, and while demand continues to exceed supply, the supply shows no indication of expanding. Dealers and brokers are sometimes at wits' end to supply consumers' demands, and are dabbling the small supply among all users in an effort to keep production going. Production scrap, of course, has been off for some time, but railroad lists are far below normal, and dealers are sending truckloads to consumers in some instances, in an effort to get material to keep cupolas operating. Prices continue at ceiling, and with the narrow margins, brokers indicate that this may also have a depressing effect upon bringing out material.

CLEVELAND—There has been virtually no change in the scrap market here. Shipments are about the same, and while scrap is starting to move out of the Detroit area, some Valley consumers are taking good low phos. Major consumers are still in comfortable position inventory-wise, some machine shop scrap is showing up accompanied by rumors that some consumers are not going to buy baled turnings unless absolutely necessary. Demand is for turnings in form.

BIRMINGHAM—The coal mine strike has yet to affect scrap purchases here. Mills are in the market for all grades. Mill inventories vary with some plants laying down scrap and others charging direct from cars to furnaces. Cast and blast furnace grades remain very tight.

TORONTO—While improvement in scrap iron and steel deliveries continues a feature of the Canadian markets, fresh receipts are well below actual requirements. With summer weather prevailing throughout most of Ontario, scrap collections are proceeding more vigorously and these new supplies are making their way to consuming centers in fairly large volume, while at the same time more scrap is coming from industrial plants. However, it is pointed out that incoming scrap is only about enough to meet 30 to 35 pct of consumer requirements. Steel mills continue to draw heavily on rapidly depleting stockpiles, but with the mild weather at hand, it is expected that the shortage will not be as serious as earlier predicted. Iron scrap for foundry use is still in limited supply and most melters are using pig iron as a fill-in.

IRON AND STEEL SCRAP PRICES

PITTSBURGH

Per gross ton delivered to consumer:

No. 1 hvy. melting	\$20.00*
RR. hvy. melting	21.00*
No. 2 hvy. melting	20.00*
RR. scrap rails	21.50*
Rails 3 ft. and under	23.50*
No. 1 comp'd sheets	20.00*
Hand bldd. new shts.	20.00*
Hvy. axle turn.	19.50*
Hvy. steel forge turn.	19.50*
Mach. shop turn.	15.00*
Short shov. turn.	17.00*
Mixed bor. and turn.	15.00*
Cast iron borings	16.00*
Hvy. break cast.	16.50*
No. 1 cupola	20.00*
RR. knuck. and coup.	24.50*
RR. coil springs	24.50*
Rail leaf springs	24.50*
Roller steel wheels	24.50*
Low phos. bil. crops	25.00*
Low phos.	22.50*
RR. malleable	22.00*

CHICAGO

Per gross ton delivered to consumer:

No. 1 hvy. melting	\$18.75*
No. 2 hvy. melting	18.75*
No. 1 bundles	18.75*
No. 2 dealers' bndls.	18.75*
Bundled mach. shop turn.	18.75*
Galv. bundles	16.75*
Mach. shop turn.	13.75*
Short shovels, turn.	15.75*
Cast iron borings	14.75*
Mix. borings & turn.	13.75*
Low phos. hvy. forge	23.75*
Low phos. plates	21.25*
No. 1 RR. hvy. melt.	19.75*
Reroll rails	22.25*
Miscellaneous rails	20.25*
Angles & splice bars	22.25*
Locomotive tires, cut	24.25*
Cut bolsters & side frames	22.25*
Standard stl. car axles	25.75*
No. 3 steel wheels	23.25*
Couplers & knuckles	23.25*
Agricul. malleable	22.00*
RR. malleable	22.00*
No. 1 mach. cast.	20.00*
Rails 3 ft. and under	22.25*
No. 1 agricul. cast.	20.00*
Hvy. breakable cast.	16.50*
RR. grate bars	15.25*
Cast iron brake shoes	15.25*
Stove plate	19.00*
Clean auto cast.	20.00*
Cast iron carwheels	20.00*

CINCINNATI

Per gross ton delivered to consumer:

No. 1 hvy. melting	\$19.50*
No. 2 hvy. melting	19.50*
No. 1 bundles	19.50*
No. 2 bundles	19.50*
Mach. shop turn.	\$10.50 to 11.00
Shoveling turn.	12.50 to 13.00
Cast iron borings	11.50 to 12.00
Mixed bor. & turn.	11.50 to 12.00
Low phos. plate	22.00*
No. 1 cupola cast.	20.00*
Hvy. breakable cast.	16.50*
Stove plate	19.00*
Scrap rails	21.00*

BOSTON

Dealers' buying prices per gross ton, f.o.b. cars

No. 1 hvy. melting	\$15.05*
No. 2 hvy. melting	15.05*
No. 1 and 2 bundles	15.05*
Busheling	15.05*
Turnings, shovellings	12.05*
Machine shop turn.	10.05*
Mixed bor. & turn.	10.05*
Cl'n cast, chem. bor.	\$13.06 to 14.15*

Truck delivery to foundry

Machinery cast.	21.00 to 23.51*
Breakable cast	21.57 to 21.87*
Stove plate	20.00 to 23.51*

DETROIT

Per gross ton, brokers' buying prices:

No. 1 hvy. melting	\$17.32*
No. 2 hvy. melting	17.32*
No. 1 bundles	17.32*
New busheling	17.32*
Flashings	17.32*
Mach. shop turn.	12.32*
Short shov. turn.	14.32*

Going prices as obtained in the trade by IRON AGE editors, based on representative tonnages. Where asterisks are used on quotations below, this indicates a ceiling price to which must be added brokerage fee and adjusted freight.

Cast iron borings	13.32*
Mixed bor. & turn.	12.32*
Low phos. plate	19.82*
No. 1 cupola cast.	20.00*
Charging box cast.	19.00*
Hvy. breakable cast.	16.50*
Stove plate	19.00*
Automotive cast	20.00*

PHILADELPHIA

Per gross ton delivered to consumer:

No. 1 hvy. melting	\$18.75*
No. 2 hvy. melting	18.75*
No. 2 bundles	18.75*
Mach. shop turn.	13.75*
Shoveling turn.	15.75*
Cast iron borings	14.75*
Mixed bor. & turn.	13.75*
No. 1 cupola cast.	20.00*
Hvy. breakable cast	16.50*
Cast, charging box	19.00*
Hvy. axle forge turn.	18.25*
Low phos. plate	21.25*
Low phos. punchings	21.25*
Billet crops	21.25*
RR. steel wheels	23.25*
RR. coil springs	23.25*
RR. malleable	22.00*

ST. LOUIS

Per gross ton delivered to consumer:

Heavy melting	\$17.50*
Bundled sheets	17.50*
Mach. shop turn.	12.50*
Locomotive tires, uncut.	\$18.50 to 19.00
Misc. std. sec. rails	19.00*
Rerolling rails	21.00*
Steel angle bars	21.00*
Rails 3 ft. and under	21.50*
RR. springs	22.00*
Steel car axles	24.50*
Stove plate	19.00*
Grate bars	15.25*
Brake shoes	15.25*
RR. malleable	22.00*
Cast iron carwheels	20.00*
No. 1 mach'ry cast	20.00*
Breakable cast	16.50*

BIRMINGHAM

Per gross ton delivered to consumer:

No. 1 hvy. melting	\$17.00*
No. 2 hvy. melting	17.00*
No. 2 bundles	17.00*
No. 1 busheling	17.00*
Long turnings	12.90*
Shoveling turnings	14.00*
Cast iron borings	13.00*
Bar crops and plate	\$18.50 to 19.50*
Structural and plate	18.50 to 19.50*
No. 1 cast	20.00*
Stove plate	19.00*
Steel axles	18.50*
Scrap rails	18.50*
Rerolling rails	20.50*
Angles & splice bars	20.50 to 21.00*
Rails 3 ft. & under	21.00*
Cast iron carwheels	17.50 to 18.00*

YOUNGSTOWN

Per gross ton delivered to consumer:

No. 1 hvy. melting	\$20.00*
No. 2 hvy. melting	20.00*
Low phos. plate	22.50*
No. 1 busheling	20.00*
Hydraulic bundles	20.00*
Mach. shop turn.	15.00*
Short shov. turn.	17.00*
Cast iron borings	16.00*

NEW YORK

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	\$15.33*
No. 2 hvy. melting	15.33*
Comp. black bundles	15.33*
Comp. galv. bundles	13.33*
Mach. shop turn.	10.33*
Mixed bor. & turn.	10.33*
Shoveling turn.	12.33*
No. 1 cupola cast	20.00*

Hvy. breakable cast	16.50*
Charging box cast	19.00*
Store plate	19.00*
Clean auto cast	20.90*
Unstrip. motor blks.	17.50*
Cl'n chem. cast bor.	14.33*

BUFFALO

Per gross ton delivered to consumer:

No. 1 hvy. melting	\$19.25*
No. 1 bundles	19.25*
No. 2 bundles	19.25*
No. 2 hvy. melting	19.25*
Mach. shop turn.	14.25*
Shoveling turn.	16.25*
Cast iron borings	15.25*
Cast iron borings	15.25*
Mixed bor. & turn.	14.25*
Stove plate	19.00*
Low phos. plate	21.75*
Scrap rails	20.75*
Rails 3 ft. & under	22.75*
RR. steel wheels	23.75*
Cast iron car wheels	20.00*
RR. coll & leaf spgs.	23.75*
RR. knuckles & coup.	23.75*
RR. malleable	22.00*
No. 1 busheling	19.25*

CLEVELAND

Per gross ton delivered to consumer:

No. 1 hvy. melting	\$19.50*
No. 2 hvy. melting	19.50*
Compressed sheet stl.	19.50*
Drop forge flashings	19.00*
No. 2 bundles	19.50*
Mach. shop turn.	14.50*
Short shovel	16.50*
No. 1 busheling	19.50*
Steel axle turn.	19.00*
Low phos. billet and bloom crops	24.50*
Cast iron borings	15.50*
Mixed bor. & turn.	14.50*
No. 2 busheling	17.00*
No. 1 machine cast	20.00*
Railroad cast	20.00*
Railroad grate bars	15.25*
Stove plate	19.00*
RR. hvy. melting	20.50*
Rails 3 ft. & under	23.00*
Rails 18 in. & under	24.25*
Rails for rerolling	23.00*
Railroad malleable	22.00*
Elec. furnace punch	22.00*

SAN FRANCISCO

Per gross ton delivered to consumer:

RR. hvy. melting	\$15.00 to 15.75
No. 1 hvy. melting	15.00 to 15.75
No. 2 hvy. melting	14.00 to 14.75
No. 2 bales	13.00 to 13.75
No. 3 bales	7.50 to 8.25
Mach. shop turn.	6.50 to 7.25
Elec. furn. 1 ft. und.	15.50 to 17.00
No. 1 cupola cast.	19.00 to 21.00

LOS ANGELES

Per gross ton delivered to consumer:

No. 1 hvy. melting	\$14.50 to \$15.25
No. 2 hvy. melting	13.50 to 14.25
No. 1 bales	13.50 to 14.25
No. 2 bales	12.50 to 13.25
No. 3 bales	8.00 to 8.00
Mach. shop turn.	6.00
No. 1 cupola cast.	19.00 to 21.00

SEATTLE

Per gross ton delivered to consumer:

RR. hvy. melting	\$12.50
No. 1 & No. 2 hvy. melting	12.50
Elec. furn. 1 ft. und.	\$14.00 to 15.00
No. 1 cupola cast.	20.00*

HAMILTON, ONT.

Per gross ton delivered to consumer:

Heavy melting	\$17.50*
No. 1 bundles	17.50*
No. 2 bundles	17.00*
Mixed steel scrap	15.50*
Rails, remelting	18.50*
Rails, rerolling	21.50*
Bushelings	13.00*
Mixed borings & turnings	12.50*
Electric furnace bundles	20.50*
Manganese steel scrap	20.00*
No. 1 cast	19.00*
Stove plate	17.50*
Car wheels, cast	19.50*
Malleable iron	16.00*

Comparison of Prices . .

[Advances over past week in Heavy Type; declines in *Italics*. Prices are f.o.b. major basing points. The various basing points for finished and semifinished steel are listed in the detailed price tables.]

Flat-Rolled Steel (cents per pound)	Apr. 2, 1946	Mar. 26, 1946	Feb. 26, 1946	Apr. 3, 1945
Hot-rolled sheets	2.425	2.425	2.425	2.20
Cold-rolled sheets	3.275	3.275	3.275	3.05
Galvanized sheets (24 ga.)	4.05	4.05	4.05	3.65
Hot-rolled strip				
6 in. and under	2.45	2.45	2.45	2.10
Over 6 in.	2.35	2.35	2.35	2.10
Cold-rolled strip	3.05	3.05	3.05	2.80
Plates	2.50	2.50	2.50	2.20
Plates, wrought iron	4.112	4.112	4.112	3.80
Stain's c-r strip (No. 302)	28.00	28.00	28.00	28.00

Tin and Terneplate: (dollars per base box)	Apr. 2, 1946	Mar. 26, 1946	Feb. 26, 1946	Apr. 3, 1945
Tinplate, standard cokes.	\$5.25	\$5.25	\$5.25	\$5.00
Tinplate, electro (0.50 lb)	4.75	4.75	4.75	4.50
Special coated mfg. ternes	4.55	4.55	4.55	4.30

Bars and Shapes: (cents per pound)	Apr. 2, 1946	Mar. 26, 1946	Feb. 26, 1946	Apr. 3, 1945
Merchant bars	2.50	2.50	2.50	2.15
Cold-finished bars	3.10	3.10	3.10	2.65
Alloy bars	2.808	2.808	2.808	2.70
Structural shapes	2.35	2.35	2.35	2.10
Stainless bars (No. 302)	24.00	24.00	24.00	24.00
Wrought iron bars	4.76	4.76	4.76	4.40

Wire and Wire Products: (cents per pound)	Apr. 2, 1946	Mar. 26, 1946	Feb. 26, 1946	Apr. 3, 1945
Bright wire	3.05	3.05	3.05	2.60
Wire nails	3.25	3.25	3.25	2.80

Rails: (dollars per net ton)	Apr. 2, 1946	Mar. 26, 1946	Feb. 26, 1946	Apr. 3, 1945
Heavy rails	\$43.39	\$43.39	\$43.39	\$43.00
Light rails	49.18	49.18	49.18	43.00

Semifinished Steel: (dollars per gross ton)	Apr. 2, 1946	Mar. 26, 1946	Feb. 26, 1946	Apr. 3, 1945
Rerolling billets	\$39.00	\$39.00	\$39.00	\$34.00
Sheet bars	38.00	38.00	38.00	34.00
Slabs, rerolling	39.00	39.00	39.00	34.00
Forging billets	47.00	47.00	47.00	40.00
Alloy blooms, billets, slabs	56.16	56.16	56.16	54.00

Wire Rods and Skelp: (cents per pound)	Apr. 2, 1946	Mar. 26, 1946	Feb. 26, 1946	Apr. 3, 1945
Wire rods	2.30	2.30	2.30	2.00
Skelp	2.05	2.05	2.05	1.90

Note: Increased steel prices announced Mar. 1 are retroactive to Feb. 15.

Pig Iron: (per gross ton)	Apr. 2, 1946	Mar. 26, 1946	Feb. 26, 1946	Apr. 3, 1945
No. 2 foundry, Phila.	\$28.34	\$28.34	\$27.59	\$26.84
No. 2, Valley furnace	26.50	26.50	25.75	25.00
No. 2, Southern, Cin'ti.	26.94	26.94	26.19	25.44
No. 2, Birmingham	22.88	22.88	22.13	21.38
No. 2 foundry, Chicago†	26.50	26.50	25.75	25.00
Basic, del'd eastern Pa.	27.84	27.84	27.09	26.34
Basic, Valley furnace	26.00	26.00	25.25	24.50
Malleable, Chicago†	26.50	26.50	25.75	25.00
Malleable, Valley	26.50	26.50	25.75	25.00
L. S. charcoal, Chicago	42.34	42.34	42.34	42.34
Ferromanganese†	135.00	135.00	135.00	135.00

† The switching charge for delivery to foundries in the Chicago district is 60¢ per ton.
‡ For carlots at seaboard.

Scrap: (per gross ton)	Apr. 2, 1946	Mar. 26, 1946	Feb. 26, 1946	Apr. 3, 1945
Heavy melt'g steel, P'gh.	\$20.00	\$20.00	\$20.00	\$20.00
Heavy melt'g steel, Phila.	18.75	18.75	18.75	18.75
Heavy melt'g steel, Ch'go	18.75	18.75	18.75	18.75
No. 1 hy. comp. sheet, Det.	17.32	17.32	17.32	17.32
Low phos. plate, Youngs'n	22.50	22.50	22.50	22.50
No. 1 cast, Pittsburgh	20.00	20.00	20.00	20.00
No. 1 cast, Philadelphia	20.00	20.00	20.00	20.00
No. 1 cast, Chicago	20.00	20.00	20.00	20.00

Coke, Connellsville: (per net ton at oven)	Apr. 2, 1946	Mar. 26, 1946	Feb. 26, 1946	Apr. 3, 1945
Furnace coke, prompt	\$7.50	\$7.50	\$7.50	\$7.00
Foundry coke, prompt	9.00	9.00	9.00	8.25

Nonferrous Metals: (cents per pound to large buyers)	Apr. 2, 1946	Mar. 26, 1946	Feb. 26, 1946	Apr. 3, 1945
Copper, electro., Conn.	12.00	12.00	12.00	12.00
Copper, Lake	12.00	12.00	12.00	12.00
Tin, Straits, New York	52.00	52.00	52.00	52.00
Zinc, East St. Louis	8.25	8.25	8.25	8.25
Lead, St. Louis	6.35	6.35	6.35	6.35
Aluminum, virgin, del'd.	15.00	15.00	15.00	15.00
Nickel, electrolytic	35.00	35.00	35.00	35.00
Magnesium, ingot	20.50	20.50	20.50	20.50
Antimony, Laredo, Tex.	14.50	14.50	14.50	14.50

Composite Prices . .

[Starting with the issue of Apr. 22, 1943, the weighted finished steel index was revised for the years 1941, 1942 and 1943. See explanation of the change on p. 90 of the Apr. 22, 1943, issue. Index revised to a quarterly basis as of Nov. 16, 1944; for details see p. 98 of that issue. The finished steel composite prices for the current quarter are an estimate based on finished steel shipments for the previous quarter. These figures will be revised when the actual data of shipments for this quarter are compiled.]

FINISHED STEEL				
April 2, 1946	2.69516¢	per lb.		
One week ago	2.69516¢	per lb.		
One month ago	2.69516¢	per lb.		
One year ago	2.42471¢	per lb.		

HIGH					LOW				
1946	2.69516¢	Feb. 19	2.44104¢	Jan. 1	26.12	Mar. 19	25.37	Jan. 1	19.17
1945	2.44104¢	Oct. 2	2.38444¢	Jan. 2	25.37	Oct. 23	23.61	Jan. 2	19.17
1944	2.38444¢	Sept. 5	2.21189¢	Oct. 5	23.61		23.61	19.17	Jan. 11
1943	2.29176¢		2.29176¢		23.61		23.61	19.17	
1942	2.28249¢		2.28249¢		23.61		23.61	19.17	
1941	2.43078¢		2.43078¢		23.61	Mar. 20	23.45	Jan. 2	22.00
1940	2.30467¢	Jan. 2	2.24107¢	Apr. 16	23.45	Dec. 23	22.61	Jan. 2	21.83
1939	2.35367¢	Jan. 3	2.26689¢	May 16	22.61	Sept. 19	20.61	Sept. 12	22.50
1938	2.58414¢	Jan. 4	2.27207¢	Oct. 18	23.25	June 21	19.61	July 6	15.00
1937	2.58414¢	Mar. 9	2.32263¢	Jan. 4	23.25	Mar. 9	20.25	Feb. 16	21.92
1936	2.32263¢	Dec. 28	2.05200¢	Mar. 10	19.74	Nov. 24	18.73	Aug. 11	17.75
1935	2.07642¢	Oct. 1	2.06492¢	Jan. 8	18.84	Nov. 5	17.83	May 14	13.42
1934	2.15367¢	Apr. 24	1.95757¢	Jan. 2	17.90	May 1	16.90	Jan. 27	13.00
1933	1.95578¢	Oct. 3	1.75836¢	May 2	16.90	Dec. 5	13.56	Jan. 3	12.25
1932	1.89196¢	July 5	1.83901¢	Mar. 1	14.81	Jan. 5	13.56	Dec. 6	8.50
1931	1.99626¢	Jan. 13	1.86586¢	Dec. 29	15.90	Jan. 6	14.79	Dec. 15	11.33
1930	2.25488¢	Jan. 7	1.97319¢	Dec. 9	18.21	Jan. 7	15.90	Dec. 16	15.00
1929	2.31773¢	May 28	2.26498¢	Oct. 29	18.71	May 14	18.21	Dec. 17	17.58

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold-rolled sheets and strip, representing 73 pct of the United States output. Index recapitulated in Aug. 28, 1941, issue.

PIG IRON					SCRAP STEEL				
April 2, 1946	26.12	per gross ton			April 2, 1946	19.17	per gross ton		
One week ago	26.12	per gross ton			One week ago	19.17	per gross ton		
One month ago	25.37	per gross ton			One month ago	19.17	per gross ton		
One year ago	24.61	per gross ton			One year ago	19.17	per gross ton		

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Based on No. 1 heavy melting steel scrap quotations to consumers at Pittsburgh, Philadelphia and Chicago.



LOOKING FOR WIRE WITH WORKABILITY?

● Workability in wire should go hand in hand with other important qualities. That's why Continental engineers work to make each wire meet *all* the requirements of its application. From furnace to finish, it is made for the job.

Continental has produced wire with superior qualities for the particular use and method of fabrication for many manufacturers. Continental engineers work with manufacturers to meet exacting requirements in wire and to cut costs. Their experience may be helpful to you.



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GENERAL OFFICES • KOKOMO, INDIANA

PRODUCERS OF Manufacturer's Wire in many sizes, shapes, tempers and finishes, including Galvanized, KOKOTE, Flame-Sealed, Coppered, Tinned, Annealed, Liquor Finished, Bright, Lead Coated, and special wire. ALSO, Coated and Uncoated Steel Sheets, Nails, Continental Chain Link Fence, and other products.

Iron and Steel Prices...

Steel prices shown here are f.o.b. basing points, in cents per pound or dollars per gross ton. Extras apply. Delivered prices do not reflect 3 pct tax on freight. (1) Mill run sheet, 10¢ per 100 lb under base; primes, 25¢ above base. (2) Unassorted commercial coating. (3) Widths up to 12-in. inclusive. (4) 0.25 carbon and less. (5) applies to certain width and length limitations. (6) For merchant trade. (7) For straight length material only from producer to consumer. Discount of 25¢ per 100 lb to fabricators. (8) Also shafting. For quantities of 20,000 lb to 39,999 lb. (9) Carload lot in manufacturing trade. (10) Prices do not apply if rail and water is not used. (11) Boxed. (12) This base price for annealed, bright finish wires, commercial spring wire. (13) Produced to dimensional tolerances in AISI Manual Sect. 6. (14) Billets only. (15) 9/32 in. to 47/64 in., 0.15¢ per lb higher. (16) If customarily sold by the producer as cold-rolled strip, deduct the 8.2 pct increase and add 0.25¢ per lb.

Basing Points													DELIVERED TO		
	Pitts- burgh	Chicago	Gary	Cleve- land	Birm- ingham	Buffalo	Youngs- town	Spar- rows Point	Granite City	Middle- town, Ohio	Gulf Ports, Cars	10 Pacific Ports, Cars	Detroit	New York	Phila- delphia
INGOTS															
Carbon, rerolling	(\$33.00 f. o. b. mill)														
Carbon, forging	\$38	\$38	\$38	\$38	\$38	\$38	\$38								
Alloy	\$46.80	\$46.80				\$46.80	(Bethlehem, Massillon, Canton, Coatesville = \$46.80)								
BILLETS, BLOOMS, SLABS															
Carbon, rerolling	\$39	\$39	\$39	\$39	\$39	(Provo = \$50.20, Duluth = \$41 ¹⁴)						\$51 ¹⁴	\$41		
						\$39	\$39	\$39							
Carbon, forging billets	\$47	\$47	\$47	\$47	\$47	(Provo = \$58.20, Duluth = \$49 ¹⁴)						\$59 ¹⁴	\$49		
Alloy	\$56.16	\$56.16				\$56.16	\$47	\$47	(Bethlehem, Massillon, Canton = \$56.16)				\$61		
SHEET BARS	\$38	\$38		\$38		\$38	\$38		(Canton = \$38)						
PIPE SKELP	2.05¢	2.05¢					2.05¢	2.05¢	(Coatesville = 2.05¢)						
WIRE RODS ¹⁵ No. 5 to 7/32 in.	2.30¢	2.30¢		2.30¢	2.30¢	(Worcester = 2.40¢)						2.55¢	2.80¢		
SHEETS															
Hot-rolled	2.425¢	2.425¢	2.425¢	2.425¢	2.425¢	2.425¢	2.425¢	2.425¢	2.525¢	2.425¢		2.975¢	2.525¢	2.665¢	2.595¢
Cold-rolled ¹	3.275¢	3.275¢	3.275¢	3.275¢		3.275¢	3.275¢		3.375¢	3.275¢		3.925¢	3.375¢	3.615¢	3.595¢
Galvanized (24 gage)	4.05¢	4.05¢	4.05¢		4.05¢	4.05¢	4.05¢	4.05¢	4.15¢	4.05¢		4.60¢		4.29¢	4.22¢
Enameling (20 gage)	3.80¢	3.80¢	3.80¢	3.80¢			3.80¢		3.90¢	3.80¢		4.45¢	3.90¢	4.16¢	4.12¢
Long ternes ²	4.05¢	4.05¢	4.05¢									4.80¢		4.41¢	4.37¢
STRIP															
Hot-rolled ³ 6 in. and under over 6 in.	2.45¢ 2.35¢	2.45¢ 2.35¢	2.45¢ 2.35¢	2.45¢ 2.35¢	2.45¢ 2.35¢		2.45¢ 2.35¢			2.45¢ 2.35¢		3.10¢ 3.00¢	2.55¢ 2.45¢	2.81¢ 2.71¢	2.77¢ 2.67¢
Cold-rolled ⁴	3.05¢	3.15¢		3.05¢			3.05¢	(Worcester = 3.25¢)					3.15¢	3.41¢	3.37¢
Cooperage stock	2.55¢	2.55¢			2.55¢		2.55¢							2.81¢	
Commodity cold-rolled	3.20¢	3.30¢		3.20¢			3.20¢	(Worcester = 3.60¢)					3.30¢	3.56¢	
TINPLATE															
Standard cokes, base box	\$5.25	\$5.25	\$5.25		\$5.35			\$5.35	\$5.35					\$5.60 ¹¹	\$5.53 ¹¹
Electro, box { 0.25 lb 0.50 lb 0.75 lb	\$4.60 \$4.75 \$4.90	\$4.60 \$4.75 \$4.90	\$4.60 \$4.75 \$4.90					\$4.70 \$4.85 \$5.00	\$4.85 \$5.00						
BLACKPLATE															
29 gage ⁵	3.30¢	3.30¢	3.30¢					3.40¢	3.40¢			4.30¢			3.57¢
TERNES, MFG.															
Special coated, base box	\$4.55	\$4.55	\$4.55					\$4.65	\$4.65						
BARS															
Carbon steel	2.50¢	2.50¢	2.50¢	2.50¢	2.50¢	2.50¢	2.50¢	(Duluth = 2.60¢) (Provo, Utah = 3.20¢)			2.85¢	3.15¢	2.60¢	2.84¢	2.82¢
Rail steel ⁶	2.50¢	2.50¢	2.50¢	2.50¢	2.50¢	2.50¢					2.85¢	3.15¢			
Reinforcing (billet) ⁷	2.35¢	2.35¢	2.35¢	2.35¢	2.35¢	2.35¢	2.35¢	2.35¢			2.70¢	2.75¢	2.45¢	2.59¢	2.67¢
Reinforcing (rail) ⁷	2.35¢	2.35¢	2.35¢	2.35¢	2.35¢	2.35¢	2.35¢				2.70¢	2.75¢	2.45¢		2.57¢
Cold-finished ⁸	3.10¢	3.10¢	3.10¢	3.10¢		3.10¢		(Detroit = 3.15¢) (Toledo = 3.25¢)					3.44¢	3.42¢	
Alloy, hot-rolled	2.808¢	2.808¢				2.808¢	2.808¢	(Bethlehem Massillon, Canton = 2.808¢)				2.908¢			
Alloy, cold-drawn	3.484¢	3.484¢	3.484¢	3.484¢		3.484¢							3.584¢		
PLATE															
Carbon steel ¹³	2.50¢	2.50¢	2.50¢	2.50¢	2.50¢		2.50¢	(Coatesville and Claymont = 2.50¢, Provo, Utah = 3.20¢)			2.85¢	3.05¢	2.72¢	2.69¢	2.55¢
Floor plates	3.75¢	3.75¢									4.10¢	4.40¢		4.11¢	4.07¢
Alloy	3.64¢	3.64¢				(Coatesville = 3.64¢)					4.108¢	4.316¢		3.64¢	3.73¢
SHAPES															
Structural	2.35¢	2.35¢	2.35¢		2.35¢	2.35¢	(Bethlehem = 2.35¢)				2.60¢	3.00¢		2.52¢	2.465¢
SPRING STEEL, C-R ¹⁰															
0.26 to 0.50 carbon	3.04¢			3.04¢			(Worcester = 3.24¢)								
0.51 to 0.75 carbon	4.65¢			4.65¢			(Worcester = 4.85¢)								
0.76 to 1.00 carbon	6.65¢			6.65¢			(Worcester = 6.85¢)								
1.01 to 1.25 carbon	9.03¢			9.03¢			(Worcester = 9.23¢)								
WIRE ⁹															
Bright ¹²	3.05¢	3.05¢		3.05¢	3.05¢		(Worcester = 3.15¢) (Duluth = 3.10¢)				3.55¢				3.37¢
Galvanized	Add proper size extra and galvanizing extra to Bright Wire Base														
Spring (high carbon)	3.65¢	3.65¢		3.65¢			(Worcester = 3.75¢)				4.15¢				3.97¢
PILING															
Steel sheet	2.65¢	2.65¢				2.65¢						3.20¢			2.97¢

PRICES

CORROSION AND HEAT RESISTANT STEELS

in cents per pound, f.o.b. basing point

BASING POINT	Chromium Nickel		Straight Chromium			
	No. 304	No. 302	No. 410	No. 430	No. 442	No. 446
Ingot, P'gh, Chi, Canton, Balt, Reading, Ft. Wayne, Phila.	Subject to negotiation			Subject to negotiation		
Blooms, P'gh, Chi, Canton, Phila, Reading, Ft. Wayne, Balt.	21.25	20.40	15.725	16.15	19.125	23.375
Slabs, P'gh, Chi, Canton, Balt, Phila, Reading	21.25	20.40	15.725	16.15	19.125	23.375
Billets, P'gh, Chi, Canton, Newark, N. J., Watervliet, Syracuse, Balt.	Subject to negotiation			Subject to negotiation		
Billets, forging, P'gh, Chi, Canton, Dunkirk, Balt, Phila, Reading, Watervliet, Syracuse, Newark, N. J., Ft. Wayne, Titusville.	21.25	20.40	15.725	16.15	19.125	23.375
Bars, h-r, P'gh, Chi, Canton, Dunkirk, Watervliet, Newark, N. J., Syracuse, Balt, Phila, Reading, Ft. Wayne, Titusville.	25.00	24.00	18.50	19.00	22.50	27.50
Bars, c-f, P'gh, Chi, Cleve, Canton, Dunkirk, Newark, N. J., Syracuse, Balt, Phila, Reading, Ft. Wayne, Watervliet.	25.00	24.00	18.50	19.00	22.50	27.50
Plates, P'gh, Middletown, Canton.	29.00	27.00	21.50	22.00	26.50	30.50
Shapes, structural, P'gh, Chi.	25.00	24.00	18.50	19.00	22.50	27.50
Sheets, P'gh, Chi, Middletown, Canton, Balt.	36.00	34.00	28.50	29.00	32.50	36.50
Strip, h-r, P'gh, Chi, Reading, Canton, Youngstown.	23.50	21.50	17.00	17.50	24.00	35.00
Strip, c-r, P'gh, Cleve, Newark, N. J., Reading, Canton, Youngstown.	30.00	28.00	22.00	22.50	32.00	32.00
Wire, c-d, Cleve, Dunkirk, Syracuse, Balt, Reading, Canton, P'gh, Newark, N. J., Phila.	25.00	24.00	18.50	19.00	22.50	27.50
Wire flat, c-r, Cleve, Balt, Reading, Dunkirk, Canton.	30.00	28.00	22.00	22.50	32.00	32.00
Rod, h-r, Newark, N. J., Syracuse.	25.00	24.00	18.50	19.00	22.50	27.50
Tubing, seamless, P'gh, Chi, Canton, (4 in. to 6 in.).	66.63	66.63	.....	63.30	.....	.....

SHELL STEEL

per gross ton

3 in. to 12 in.	\$52.00
12 in. to 18 in.	54.00
18 in. and over	56.00

Basic openhearth shell steel, f.o.b. Pittsburgh, Chicago, Buffalo, Gary, Cleveland, Youngstown and Birmingham.

Prices delivered Detroit are \$2.00 higher; East Michigan, \$3 higher.

Price Exceptions: Follansbee Steel Corp. permitted to sell at \$13.00 per gross ton, f.o.b. Toronto, Ohio, above base price of \$52.00.

Note: The above base prices apply on lots of 1000 tons of a size and section to which are to be added extras for chemical requirements, cutting, or quantity.

ELECTRICAL SHEETS

Base, all grades f.o.b. Pittsburgh

	per lb
Field grade	3.90¢
Armature	4.25¢
Electrical	4.75¢
Motor	5.425¢
Dynamo	6.125¢
Transformer 72	6.625¢
Transformer 65	7.625¢
Transformer 58	8.125¢
Transformer 52	8.925¢

F.o.b. Chicago and Gary, field grade through motor; f.o.b. Granite City, add 10¢ per 100 lb on field grade to and including dynamo. Pacific ports add 75¢ per 100 lb on all grades.

RAILS, TRACK SUPPLIES

(F.o.b. mill)

Standard rails, heavier than 60 lb	
No. 1 O.H., net ton	\$43.59
Angle splice bars, 100 lb	2.95
(F.o.b. basing points)	
Light rails (from billets)	\$49.18
Light rails (from rail steel)	48.29
base per lb	
Cut spikes	3.65¢
Screw spikes	5.55¢
Tie plate, steel	2.55¢
Tie plates, Pacific Coast	2.70¢
Track bolts	4.75¢
Track bolts, heat treated, to railroads	5.00¢
Track bolts, jobbers discount	63-5

Basing points, light rails, Pittsburgh, Chicago, Birmingham; cut spikes and tie plates—Pittsburgh, Chicago, Portsmouth, Ohio, Weirton, W. Va., St. Louis, Kansas City, Minnequa, Colo., Birmingham and Pacific Coast ports; tie plates alone—Steelton, Pa., Buffalo. Cut spikes alone—Youngstown, Lebanon, Pa., Richmond, Oregon and Washington ports, add 25¢.

TOOL STEEL

(F.o.b. Pittsburgh, Bethlehem, Syracuse, Dunkirk)

	base per lb
(*Also Canton, O.)	
High speed	72.5¢
Straight molybdenum	58.4¢
Tungsten-molybdenum	62.2¢
High-carbon-chromium*	46.5¢
Oil hardening*	26.0¢
Special carbon*	23.8¢
Extra carbon*	19.5¢
Regular carbon*	15.2¢
Warehouse prices east of Mississippi are 2¢ per lb higher; west of Mississippi 3¢ higher.	

CLAD STEEL

Base prices, cents per pound

	Plate	Sheet
Stainless-clad		
No. 304, 20 pct, f.o.b. Pittsburgh, Washington, Pa.	18.72*	13.76
Nickel-clad		
10 pct, f.o.b. Coatesville, Pa.	18.72	.....
Inconel-clad		
10 pct, f.o.b. Coatesville	26.00	.....
Monel-clad		
10 pct, f.o.b. Coatesville	24.96	.....
Aluminized steel		
Hot dip, 20 gage, f.o.b. Pittsburgh	9.00	.....

*Includes annealing and pickling.

WIRE PRODUCTS

To the dealer, f.o.b. Pittsburgh, Chicago, Cleveland, Birmingham, Duluth

	Basing Points Named	Pacific Coast Basing Points†
	base per keg	
Standard wire nails...	\$3.25	\$3.75
Coated nails	3.25	3.75
Cut nails, carloads	3.85	.....
	base per 100 lb	
Annealed fence wire ..	\$3.50	\$4.00
Annealed galv. fence wire	3.85	4.35
	base column	
Woven wire fence*	72	90
Fence posts, carloads...	74	91
Single loop bale ties††	72	97
Galvanized barbed wire**	79	89
Twisted barbless wire..	79	89

*1½ gage and heavier. **On 80-rod spools in carload quantities.

†Prices subject to switching or transportation charges.

††Add 50¢ a ton.

ROOFING TERNEPLATE

(F.o.b. Pittsburgh, 112 sheets)

	20x14 in.	20x28 in.
8-lb coating I.C.....	\$8.50	\$17.00
15-lb coating I.C.....	9.50	19.00
20-lb coating I.C.....	10.00	20.00

ALLOY EXTRAS

Alloy Steel	Basic Openhearth		Electric Furnace	
	Bars and Bar-strip	Billets, Blooms and Slabs	Bars and Bar-strip	Billets, Blooms and Slabs
NE 8600	0.676¢	\$13.52	1.196¢	\$23.92
NE 8700	0.728	14.56	1.248	24.96
NE 9400	0.760	15.60	1.300	26.00
NE 9700	0.676	13.52	1.196	23.92
NE 9800	1.352	27.04	1.872	37.44
NE 9900	1.248	24.96	1.612	32.24

The extras shown are in addition to the base price of \$2.808 per 100 lb on finished products and \$56.16 per gross ton on semifinished steel, major basing points, as shown in table, opposite page, and are in cents per pound when applicable to bars and bar-strip and in dollars per gross ton when applicable to billets, blooms and slabs. When acid openhearth is specified and acceptable, add to basic openhearth alloy differential 0.26¢ per lb for bars and bar-strip and \$5.20 per gross ton for billets, blooms and slabs.

PRICES

WELDED PIPE AND TUBING

Base discounts, f.o.b. Pittsburgh district and Lorain, Ohio, mills
(F.o.b. Pittsburgh only on wrought pipe)
base price—\$200.00 per net ton

Steel (buttweld)

	Black	Galv.
1/2-in.	60 1/2	48
3/4-in.	63 1/2	52
1-in. to 3-in.	65 1/2	54 1/2

Wrought Iron (buttweld)

1/2-in.	18	+4
3/4-in.	24	2 1/2
1-in. and 1 1/4-in.	28 1/2	9
1 1/2-in.	33	12
2-in.	32	11

Steel (lapweld)

2-in.	58	46 1/2
2 1/2-in. and 3-in.	61	49 1/2
3 1/2-in. to 6-in.	63	51 1/2

Wrought Iron (lapweld)

2-in.	25	4 1/2
2 1/2-in. to 3 1/2-in.	26	7
4-in.	28	11
4 1/2-in. to 8-in.	27	10

Steel (butt, extra strong, plain ends)

1/2-in.	58 1/2	47 1/2
3/4-in.	62 1/2	51 1/2
1-in. to 3-in.	64	54

Wrought Iron (same as above)

1/2-in.	19	+1 1/2
3/4-in.	25	4 1/2
1-in. to 2-in.	33	13

Steel (lap, extra strong, plain ends)

2-in.	56	45 1/2
2 1/2-in. and 3-in.	60	49 1/2
3 1/2-in. to 6-in.	63 1/2	53

Wrought Iron (same as above)

2-in.	28	8 1/2
2 1/2-in. to 4-in.	34	16
4 1/2-in. to 6-in.	32	14 1/2

On buttweld and lapweld steel pipe jobbers are granted a discount of 5 pct. On l.c.l. shipments prices are determined by adding 25 pct and 30 pct and the carload freight rate to the base card.

F.o.b. Gary prices are two points lower discount or \$4 a ton higher than Pittsburgh or Lorain on lapweld and one point lower discount, or \$2 a ton higher on all buttweld.

BOILER TUBES

Seamless steel and lapweld commercial boiler tubes and locomotive tubes, minimum wall. Net base prices per 100 ft f.o.b. Pittsburgh, in carload lots

	Seamless Cold-Drawn	Hot-Rolled	Lapweld Hot-Rolled
2 in. O.D. 13 B.W.G.	16.52	13.90	13.20
2 1/2 in. O.D. 12 B.W.G.	22.21	18.70	17.67
3 in. O.D. 12 B.W.G.	24.71	20.79	19.56
3 1/2 in. O.D. 11 B.W.G.	31.18	26.25	24.68
4 in. O.D. 10 B.W.G.	38.68	32.56	30.55

(Extras for less carload quantities)

	Base
40,000 lb or ft and over.	5 pct
30,000 lb or ft to 39,999 lb or ft.	10 pct
20,000 lb or ft to 29,999 lb or ft.	20 pct
10,000 lb or ft to 19,999 lb or ft.	30 pct
5,000 lb or ft to 9,999 lb or ft.	45 pct
Under 2,000 lb or ft.	65 pct

CAST IRON WATER PIPE

Per Net Ton

6-in. and larger, del'd Chicago.	\$60.80
6-in. and larger, del'd New York.	60.20
6-in. and larger, Birmingham.	52.00
6-in. and larger, f.o.b. cars, San Francisco, Los Angeles or Seattle.	74.00
For all rail shipment; rail and water shipment less.	
Class "A" and gas pipe, \$3 extra; 4-in. pipe is \$5 a ton above 6-in.	

BOLTS, NUTS, RIVETS, SET SCREWS

Bolts and Nuts

(F.o.b. Pittsburgh, Cleveland, Birmingham or Chicago)

Machine and Carriage Bolts

Base discount less case lots

	Percent Off List
1/2 in. & smaller x 6 in. & shorter.	65 1/2
9/16 & 5/8 in. x 6 in. & shorter.	63 1/2
3/4 to 1 in. x 6 in. & shorter.	61
1 1/4 in. and larger, all lengths.	59
All diameters over 6 in. long.	59
Lag. all sizes.	62
Plow bolts.	65

Nuts, Cold Punched or Hot Pressed

(Hexagon or Square)

1/2 in. and smaller.	62
9/16 to 1 in. inclusive.	59
1 1/4 to 1 1/2 in. inclusive.	57
1 1/2 in. and larger.	56
On above bolts and nuts, excepting plow bolts, additional allowance of 10 pct for full container quantities. There is an additional 5 pct allowance for carload shipments.	

Semifin. Hexagon Nuts

U.S.S. S.A.E.

Base discount less keg lots

7/16 in. and smaller.	64	
1/2 in. and smaller.	62	
1/2 in. through 1 in.	60	
9/16 in. through 1 in.	59	
1 1/4 in. through 1 1/2 in.	57	58
1 1/2 in. and larger.	56	
In full keg lots, 10 pct additional discount.		

Stove Bolts

	Consumer
Packages, nuts loose.	71 and 10
In packages.	71
In bulk.	80
On stove bolts freight allowed up to 65¢ per 100 lb based on Cleveland, Chicago, New York on lots of 200 lb or over.	

Large Rivets

(1/2 in. and larger)

Base per 100 Lb

F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham. \$3.75

Small Rivets

(7/16 in. and smaller)

Percent Off List

F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham. 65 and 5

Cap and Set Screws

Consumer

	Percent Off List
Upset full fin, hexagon head cap screws, coarse or fine thread, up to and incl. 1 in. x 6 in.	64
Upset set screws, cup and oval points 71	
Milled studs.	46
Flat head cap screws, listed sizes.	36
Fillister head cap, listed sizes.	51
Freight allowed up to 65¢ per 100 lb based on Cleveland, Chicago or New York on lots of 200 lb or over.	

FLUORSPAR

Maximum price f.o.b. consumer's plant. \$30 per short ton plus either (1) rail freight from producer to consumer, or (2) rail freight from Rosiclare, Ill., to consumer, whichever is lower.

Exception

When the WPB Steel Div. certifies in writing the consumers need for one of the higher grades of metallurgical fluor spar specified in the table below the price shall be taken from the table plus items (1 and 2) from paragraph above.

	Base price per short ton
Effective CaF ₂ Content:	
70% or more.	\$33.00
65% but less than 70%.	32.00
60% but less than 65%.	31.00
Less than 60%.	30.00

METAL POWDERS

Prices are based on current market prices of ingots plus a fixed figure. F.o.b. shipping point, cents per lb, ton lots.
Copper, electrolytic, 150 and 200 mesh. 21 1/2¢ to 23 1/2¢

Copper, reduced, 150 and 200 mesh.	20 1/2¢ to 25 1/2¢
Iron, commercial, 100 and 200 mesh 96 + % Fe.	12 1/2¢ to 15¢
Iron, crushed, 200 mesh and finer, 90 + % Fe carload lots.	4¢
Iron, hydrogen reduced, 300 mesh and finer, 98 1/2 + % Fe, drum lots.	63¢
Iron, electrolytic, unannealed, 300 mesh and coarser, 99 + % Fe 30 to 33¢	
Iron, electrolytic, annealed minus 100 mesh, 99 + % Fe.	42¢
Iron carbonyl, 300 mesh and finer, 98-99.8 + % Fe.	90¢
Aluminum, 100 and 200 mesh.	*25¢
Antimony, 100 mesh.	30¢
Cadmium, 100 mesh.	\$1.40
Chromium, 100 mesh and finer.	\$1.25
Lead, 100, 200 & 300 mesh.	11 1/2¢ to 15¢
Manganese.	65¢
Nickel, 150 mesh.	51 1/2¢
Solder powder, 100 mesh. 8 1/2¢ plus metal	
Tin, 100 mesh.	58 1/2¢
Tungsten metal powder, 98%-.99%, any quantity, per lb.	\$2.60
Molybdenum powder, 99%, in 200-lb kegs, f.o.b. York, Pa., per lb.	\$2.60
Under 100 lb.	\$3.00

*Freight allowed east of Mississippi.

COKE

	Net Ton
Furnace, beehive (f.o.b. oven) Connellsville, Pa.	\$7.50*
Foundry, beehive (f.o.b. oven) Fayette Co., W. Va.	8.10
Connellsville, Pa.	9.00
Foundry, Byproduct	
Chicago, del'd.	13.75
Chicago, f.o.b.	13.00
New England, del'd.	14.65
Kearny, N. J., f.o.b.	13.05
Philadelphia, del'd.	13.28
Buffalo, del'd.	13.40
Portsmouth, Ohio, f.o.b.	11.50
Painesville, Ohio, f.o.b.	12.15
Erie, del'd.	13.15
Cleveland, del'd.	13.20
Cincinnati, del'd.	13.25
St. Louis, del'd.	13.75†
Birmingham, del'd.	10.90

*Hand drawn ovens using trucked coal permitted to charge \$8.60 per ton plus transportation charges.

†Except producers situated in states other than Missouri, Alabama or Tennessee, sellers may charge a maximum delivered price of \$14.25 in the St. Louis, Mo., and East St. Louis, Ill., switching districts.

REFRACTORIES

(F.o.b. Works)

	Per 1000
Fire Clay Brick	
Super-Duty brick, St. Louis.	\$68.50
First quality, Pa., Md., Ky., Mo., Ill.	54.40
First quality, New Jersey.	59.35
Sec. quality, Pa., Md., Ky., Mo., Ill.	49.35
Sec. quality, New Jersey.	51.95
No. 1 Ohio.	45.60
Ground fire clay, net ton.	8.05

Silica Brick	
Pennsylvania and Birmingham.	\$54.40
Chicago District.	62.45
Silica cement, net ton (Eastern).	9.55

Chrome Brick	
Standard chemically bonded, Balt., Plymouth Meeting, Chester.	\$54.00

Magnesite Brick	
Standard, Balt. and Chester.	\$76.00
Chemically bonded, Baltimore.	65.00

Grain Magnesite	
Domestic, f.o.b. Balt. and Chester in sacks (carloads).	\$43.48
Domestic, f.o.b. Chewelah, Wash. in bulk.	22.00
in sacks.	26.00

LAKE SUPERIOR ORES

(51.50% Fe, Natural Content, Delivered Lower Lake Ports*)

	Per Gross Ton
Old range, bessemer, 51.50.	\$4.95
Old range, non-bessemer, 51.50.	4.80
Mesaba, bessemer, 51.50.	4.70
Mesaba, non-bessemer, 51.50.	4.55
High phosphorus, 51.50.	4.35

*Adjustments are made to indicate prices based on variance of Fe content of ores as analyzed on a dry basis by independent laboratories.

PRICES

WAREHOUSE PRICES*

Delivered metropolitan areas per 100 lb. These are zoned warehouse prices in conformance with latest zoning amendment to OPA Price Schedule 49.

Cities	SHEETS			STRIP		Plates 1/4 in. and heavier	Structural Shapes	BARS		ALLOY BARS			
	Hot Rolled (10 gage)	Cold Rolled	Galvanized (24 gage)	Hot Rolled	Cold Rolled			Hot Rolled	Cold Finished	Hot Rolled, NE 8617-20	Hot Rolled, NE 9442-45 Ann.	Cold Drawn, NE 8617-20	Cold Drawn, NE 9442-45 Ann.
Philadelphia	\$3.518	\$4.872	\$4.868a	\$3.922	\$4.772	\$3.605	\$3.666	\$3.822	\$4.172	\$5.816	\$6.866	\$7.072	\$8.172
New York	3.58	4.613	5.210	3.974*	4.772	3.768	3.758	3.853	4.203	5.858	6.908	7.103	8.203
Boston	3.744	4.744*	5.324*	4.108	4.715	3.912	3.912	4.044	4.244	6.012	7.062	7.194	8.394
Baltimore	3.394	4.852	4.994	3.902	4.752	3.594	3.759	3.802	4.152	5.802	6.852	7.002	8.102
Norfolk	3.771	4.965	5.471	4.165	4.865	3.971	4.002	4.065	4.265	5.965	7.015	7.165	8.265
Chicago	3.25	4.20	5.331	3.60	4.651*	3.55	3.55	3.50	3.85	5.80	6.85	6.85	7.75
Milwaukee	3.387	4.337	5.372	3.737	4.787*	3.687	3.687	3.637	3.987	5.837	6.887	6.887	7.837
Cleveland	3.35	4.40	4.977	3.60	4.451*	3.40	3.588	3.35	3.85	5.808	6.858	6.85	7.75
Buffalo	3.35	4.40	4.85	3.819	4.689	3.63	3.40	3.35	3.85	5.80	6.85	6.85	7.75
Detroit	3.45	4.50	5.10	3.70	4.659*	3.609	3.661	3.45	3.90	5.93	6.98	6.98	7.88
Cincinnati	3.425	4.475	4.925*	3.675	4.711	3.681	3.691	3.611	4.111	5.95	7.00	7.011	8.111
St. Louis	3.397	4.347	5.231	3.747	4.931*	3.697	3.697	3.847	4.131	5.981	7.031	7.031	8.131
Pittsburgh	3.35	4.40	4.85	3.60	4.45	3.40	3.40	3.35	3.85	5.80	6.85	6.85	7.75
St. Paul	3.50	4.48	5.357	3.88	5.102*	3.813	3.813	3.763	4.063	5.94	6.99	7.361	8.461
Omaha	3.885	5.443	5.615	4.143	4.093	4.093	4.043	4.543	4.543	6.98	7.98	8.98	9.98
Indianapolis	3.52	4.568	5.018	3.768	4.741	3.63	3.63	3.58	4.08	5.93	6.98	6.98	7.88
Birmingham	3.45	4.85	4.85	3.70	4.741	3.55	3.55	3.65	4.53	6.98	7.98	7.98	8.98
Memphis	3.965	4.78	5.365	4.215	4.065	4.065	4.015	4.33	4.729	6.98	7.98	7.98	8.98
New Orleans	4.058*	5.079	5.458	4.308	4.158	4.158*	4.108*	4.408	4.408	6.98	7.98	7.98	8.98
Houston	3.783	5.573	6.413	4.313	4.25	4.25	3.75	6.473*	7.223	8.323	8.323	9.323	9.373
Los Angeles	5.00	7.20	8.20	4.95	5.613*	4.95	4.65	5.683	8.204	9.404	9.404	10.404	10.454
San Francisco	4.551*	7.304	8.45	4.501*	7.333*	4.651*	4.351*	4.151*	5.433	8.304	9.404	9.404	10.404
Seattle	4.651*	7.054	8.05	4.251*	4.751*	4.751*	4.451*	4.351*	5.783	8.304	9.404	9.404	10.404
Portland	4.651*	6.804	8.05	4.751*	4.751*	4.751*	4.451*	4.451*	5.633	8.304	9.404	8.304	9.404
Salt Lake City	4.5301*	....	6.271*	5.531*	....	4.981*	4.981*	4.881*	6.00	....	....	....	....

* Until new detailed warehouse prices are reported by distributors, no change will be made in the prices above. However, OPA says recent steel price adjustments may be added to the prices quoted here.

BASE QUANTITIES

Standard unless otherwise keyed on prices.

HOT-ROLLED: Sheets, strip, plates, shapes and bars, 400 to 1999 lb.

COLD-FINISHED: Sheets, 400 to 1499 lb; strip, extras on all quantities; bars, 1500 lb base.

GALVANIZED: 450 to 1499 lb.

NE ALLOY BARS: 1000 to 39,999 lb.

EXCEPTIONS: (1) 150 to 499 lb. (2) 150 to 1499 lb. (3) 400 to 1499 lb. (4) 450 to 1499 lb. (5) 500 to 1499 lb. (6) 0 to 199 lb. (7) 400 to 1499 lb. (8) 1000 to 1999 lb. (9) 450 to 3749 lb. (10) 400 to 3999 lb. (11) 800 to 4999 lb. (12) 300 to 10,000 lb. (13) 400 to 14,999 lb. (14) 400 lb and over. (15)

1000 lb and over. (16) 1500 lb and over.

(17) 2000 lb and over. (18) 3500 lb and over.

(*) Philadelphia: Galvanized sheet, 25 or more bundles.

Extra for size, quality, etc., apply on above quotations.

*Add 0.271¢ for sizes not rolled in Birmingham.

**City of Philadelphia only. Applicable freight rates must be added to basing point prices to obtain delivered price to other localities in metropolitan area.

PIG IRON PRICES

Maximum per gross ton, effective Mar. 15, 1946. Prices do not reflect 3 pct tax on freight.

BASING POINT PRICES						DELIVERED PRICES (BASE GRADES)							
Basing Point	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos.	Consuming Point	Basing Point	Freight Rate	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos.
Bethlehem	27.00	27.50	28.00	28.50		Boston	Everett	0.50	27.50	28.00	28.50	29.00	
Birdsboro	27.00	27.50	28.00	28.50	32.00	Boston	Birdsboro-Steelton	4.02					36.02
Birmingham	21.50	22.88		27.50		Brooklyn	Bethlehem	2.50	29.50	30.00	30.50	31.00	
Buffalo	25.50	26.50	27.00	27.50	32.00	Brooklyn	Birdsboro	2.92					34.92
Chicago	26.00	26.50	26.50	27.00		Canton	Clev, Ygstin, Sharpsvil.	1.39	27.39	27.89	27.89	28.39	
Cleveland	26.00	26.50	26.50	27.00		Canton	Buffalo	3.19					35.19
Detroit	26.00	26.50	26.50	27.00		Cincinnati	Birmingham	4.06	25.56	26.94			
Duluth	26.50	27.00	27.00	27.50		Cincinnati	Hamilton	1.11			27.61		
Erie	26.00	26.50	27.00	27.50		Cincinnati	Buffalo	4.40					36.40
Everett	27.00	27.50	28.00	28.50		Jersey City	Bethlehem	1.53	28.53	29.03	29.53	30.03	
Granite City	26.00	26.50	26.50	27.00		Jersey City	Birdsboro	1.94					33.94
Hamilton	26.00	26.50	26.50			Los Angeles	Provo	4.95	28.95	29.45			
Neville Island	26.00	26.50	26.50	27.00		Los Angeles	Buffalo	15.41					47.41
Provo	24.00	24.50				Mansfield	Cleveland-Toledo	1.94	27.94	28.44	28.44	28.94	
Sharpsville	26.00	26.50	26.50	27.00		Mansfield	Buffalo	3.36					35.36
Sparrows Point	27.00	27.50				Philadelphia	Swedeland	0.84	27.84	28.34	28.84	29.34	
Steelton	27.00				32.00	Philadelphia	Birdsboro	1.24					33.24
Swedeland	27.00	27.50	28.00	28.50		San Francisco	Provo	4.95	28.95	29.45			
Toledo	26.00	26.50	26.50	27.00		San Francisco	Buffalo	15.41					47.41
Youngstown	26.00	26.50	26.50	27.00		Seattle	Provo	4.95	28.95	29.45			
						Seattle	Buffalo	15.41					47.41
						St. Louis	Granite City	0.50	26.50	27.00	27.00	27.50	
						St. Louis	Buffalo	7.07					39.07

(1) Struthers Iron & Steel Co., Struthers, Ohio, may charge 50¢ per ton in excess of basing point prices for No. 2 foundry, basic, bessemer and malleable.

Charcoal pig iron base prices for Lyles, Tenn., and Lake Superior furnaces, \$33.00 and \$34.00, respectively. Newberry Brand of Lake Superior charcoal iron \$39.00 per g.t., f.o.b. furnace, by order L 39 to RPS 10. Apr. 11, 1945, retroactive to Mar. 7, 1945. Delivered to Chicago, \$42.84. High phosphorus

iron sells at Lyles, Tenn., at \$28.50.

Basing point prices are subject to switching charges; silicon differentials (not to exceed 50¢ per ton for each 0.25 pct silicon content in excess of base grade which is 1.75 to 2.25 pct); phosphorus differentials, a reduction of 38¢ per ton for phosphorus content of 0.70 pct and over; manganese differentials, a charge not to exceed 50¢ per ton for each 0.50 pct manganese content in excess of 1.00 pct. Effective Mar. 3, 1943, \$2 per ton extra

may be charged for 0.5 to 0.75 pct nickel content and \$1 per ton extra for each additional 0.25 pct nickel.

Silvery iron and bessemer ferrosilicon up to and including 14.00 pct silicon covered by RPS 10 as amended. Silvery iron, silicon 6.00 to 6.50 pct, C/L per g.t., f.o.b. Jackson, Ohio—\$32.00; f.o.b. Buffalo—\$33.25. Add \$1.00 per ton for each additional 0.50 pct Si. Add 50¢ per ton for each 0.50 pct Mn over 1.00 pct. Add \$1.00 per ton for prices of comparable analysis.

FERROALLOY PRICES

Ferromanganese

78-82% Mn, maximum contract base price, gross ton, lump size, f.o.b. Baltimore, Philadelphia, New York, Birmingham, Rockdale, Rockwood, Tenn.

Carload lots (bulk)	\$135.00
Less ton lots (packed)	143.50
F.o.b. Pittsburgh	139.50
\$1.70 for each 1% above 82% Mn; penalty, \$1.70 for each 1% below 78%.	
Briquets—per pound of briquet, freight allowed, 66% contained Mn.	

	Eastern	Central	Western
Carload, bulk ..	6.05¢	6.30¢	6.60¢
Ton lots	6.65¢	7.55¢	8.55¢
Less ton lots	6.80¢	7.80¢	8.80¢

Spiegeleisen

Contract prices, gross ton, lump, f.o.b. Palmerton, Pa.

	16-19% Mn	19-21% Mn
	3% max. Si	3% max. Si
Carloads	\$35.00	\$36.00
Less ton	47.50	48.50
F.o.b. Pittsburgh, Chicago	40.00	

Manganese Metal

Contract basis, lump size, per pound of metal, f.o.b. shipping point, freight allowed.

96-98% Mn, 0.2% max. C, 1% max. Si, 2% max. Fe.	
Carload, bulk	30¢
L.c.l. lots	32¢

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, cents per pound.

Carloads	34¢
Ton lots	36¢
Less ton lots	38¢

Low-Carbon Ferromanganese

Contract price per pound Mn contained, lump size, f.o.b. shipping point, freight allowed, eastern zone.

	Carloads	Ton	Less
0.10% max. C, 0.06% P, 90% Mn	21.00¢	21.40¢	21.65¢
0.10% max. C, 1% or 2% max. Si ..	20.50¢	20.90¢	21.15¢
0.15% max. C, 1% or 2% max. Si ..	20.00¢	20.40¢	20.65¢
0.30% max. C, 1% or 2% max. Si ..	19.50¢	19.90¢	20.15¢
0.50% max. C, 1% or 2% max. Si ..	19.00¢	19.40¢	19.65¢
0.75% max. C, 7.00% max. Si ..	16.00¢	16.40¢	16.65¢

Silicomanganese

Contract basis, lump size, per pound of metal, f.o.b. shipping point, freight allowed. 65-70% Mn, 17-20% Si, 1.5% max. C.

Carload, bulk	6.05¢
Ton lots	6.70¢
Briquet, contract basis, carlots, bulk, freight allowed, per lb. of briquet	5.80¢
Ton lots	6.30¢
Less ton lots	6.55¢

Silvery Iron (electric furnace)

Si 14.01 to 14.50%, \$48.75 f.o.b. Keokuk, Iowa; \$46.75 f.o.b. Niagara Falls. Add \$1.00 per ton for each additional 0.50% Si up to and including 18%. Add \$1.00 per ton for low impurities, not to exceed: P—0.05%, S—0.04%, C—1.00%. Covered by MPR 405.

Silicon Metal

Contract price per pound contained Si, lump size, f.o.b. shipping point, freight allowed, for ton lots, packed.

	Eastern	Central	Western
96% Si, 2% Fe ..	13.10¢	13.55¢	16.50¢
97% Si, 1% Fe ..	13.45¢	13.90¢	16.80¢

Ferrosilicon Briquets

Contract price per pound of briquet, bulk, f.o.b. shipping point, freight allowed to destination. 40% Si.

	Eastern	Central	Western
Carload, bulk ..	3.35¢	3.50¢	3.65¢
Ton lots	3.80¢	4.20¢	4.25¢

Electric Ferrosilicon

Contract price per pound contained Si, lump size in carloads, f.o.b. shipping point, freight allowed.

	Eastern	Central	Western
50% Si	6.65¢	7.10¢	7.25¢
75% Si	8.05¢	8.20¢	8.75¢
80-90% Si ..	8.90¢	9.05¢	9.55¢
90-95% Si ..	11.05¢	11.20¢	11.65¢

Ferrochrome (65-72% Cr, 2% max. Si)

Contract prices per pound, contained Cr, lump size in carloads, f.o.b. shipping point, freight allowed.

	Eastern	Central	Western
0.06% C	23.00¢	23.40¢	24.00¢
0.10% C	22.50¢	22.90¢	23.50¢
0.15% C	22.00¢	22.40¢	23.00¢
0.20% C	21.50¢	21.90¢	22.50¢
0.50% C	21.00¢	21.40¢	22.00¢
1.00% C	20.50¢	20.90¢	21.50¢
2.00% C	19.50¢	19.90¢	20.50¢
66-71% Cr, 4-10% C ...	13.00¢	13.40¢	14.00¢
62-66% Cr, 5-7% C ...	13.50¢	13.90¢	14.50¢

Briquets—contract price per pound of briquet, f.o.b. shipping point, freight allowed. 60% chromium.

	Eastern	Central	Western
Carload, bulk ..	8.25¢	8.55¢	8.95¢
Ton lots	8.75¢	9.25¢	10.75¢
Less ton lots	9.00¢	9.50¢	11.00¢

High-Nitrogen Ferrochrome

Low-carbon type: 67-72% Cr, 0.75% N. Add 2¢ per lb to regular low-carbon ferrochrome price schedule. Add 2¢ for each additional 0.25% N. High-carbon type: 66-71% Cr, 4-5% C, 0.75% N. Add 5¢ per lb to regular high-carbon ferrochrome price schedule.

S. M. Ferrochrome

Contract price per pound chromium contained, lump size, f.o.b. shipping point, freight allowed.

High carbon type: 60-65% Cr, 4-6% Si, 4-6% Mn, 4-6% C.

	Eastern	Central	Western
Carload	14.00	14.40	15.00
Ton lots	14.90	15.55	16.75
Less ton lots ..	15.40	16.05	17.25

Low carbon type: 62-66% Cr, 4-6% Si, 4-6% Mn, 1.25 max. C.

	Eastern	Central	Western
Carload	20.00	20.40	21.00
Ton lots	21.00	21.65	22.85
Less ton lots ..	22.00	22.65	23.85

Chromium Metal

Contract prices per pound, chromium contained, carload, f.o.b. shipping point, freight allowed. 97% min. Cr, 1% max. Fe.

	Eastern	Central	Western
0.20% max. C ..	83.50	85.00	86.25
0.50% max. C ..	79.50	81.00	82.25
9.00% min. C ..	79.50	81.00	82.25

Chromium—Copper

Contract price per pound of alloy, f.o.b. Niagara Falls, freight allowed east of the Mississippi. 8-11% Cr, 88-90% Cu, 1.00% max. Fe, 0.50% max. Si.

Shot or ingot

Calcium—Silicon

Contract price per lb of alloy, lump, f.o.b. shipping point, freight allowed. 30-35% Ca, 60-65% Si, 3.00% max. Fe or 28-32% Ca, 60-65% Si, 6.00% max. Fe.

	Eastern	Central	Western
Carloads	13.00	13.50	15.55
Ton lots	14.50	15.25	17.40
Less ton lots ..	15.50	16.25	18.40

Calcium—Manganese—Silicon

Contract prices per pound of alloy, lump, f.o.b. shipping point, freight allowed.

	Eastern	Central	Western
16-20% Ca, 14-18% Mn, 53-59% Si.			
Carloads	15.50¢	16.00¢	18.05¢
Ton lots	16.50¢	17.35¢	19.10¢
Less ton lots ..	17.00¢	17.85¢	19.60¢

Calcium Metal

Eastern zone contract prices per pound of metal, f.o.b. shipping point, freight allowed. Add 1¢ for central zone; 5¢ for western zone.

	Cast	Turnings	Distilled
Ton lots	\$1.35	\$1.75	\$4.25
Less ton lots ..	1.60	2.00	5.00

CMSZ

Contract price per pound of alloy, f.o.b. shipping point, freight allowed.

	Eastern	Central	Western
Alloy 4: 45-49% Cr, 4-6% Mn, 18-21% Si, 1.25-1.75% Zr, 3.00-4.5% C.			
Ton lots	12.00¢	12.75¢	14.75¢
Less ton lots ..	12.50¢	13.25¢	15.25¢
Alloy 5: 50-56% Cr, 4-6% Mn, 13.50-16.00% Si, 0.75 to 1.25% Zr, 3.50-5.00% C.			
Ton lots	11.75¢	12.50¢	14.50¢
Less ton lots ..	12.25¢	13.00¢	15.00¢

SMZ

Contract price per pound of alloy, f.o.b. shipping point, freight allowed. 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe.

	Eastern	Central	Western
Ton lots	12.00¢	12.85¢	14.60¢
Less ton lots ..	12.50¢	13.35¢	15.10¢

Other Ferroalloys

Ferrotungsten, standard, lump or ¼X down, packed, f.o.b. plant Niagara Falls, Washington, Pa., York, Pa., per pound contained T, 5 ton lots, freight allowed ..

Ferrotungsten, 35-55%, contract basis, f.o.b. plant, freight allowed, per pound contained V ..	\$1.83
Openhearth	\$2.70
Crucible	\$2.80
High speed steel (Primos) ..	\$2.90

Vanadium pentoxide, 88-92% V₂O₅, technical grade, contract basis, per pound contained V₂O₅ ..

Ferrotitanium, 40-45%, 0.10% C max., f.o.b. Niagara Falls, N. Y., ton lots, per pound contained Ti ..	\$1.23
Less ton lots	\$1.25

Ferrotitanium, 20-25%, 0.10% C max., ton lots, per pound contained Ti ..

Less ton lots	\$1.35
Less ton lots	\$1.40

High-carbon ferrotitanium, 15-20%, 6-8% C, contract basis, f.o.b. Niagara Falls, freight allowed, carloads

Ferrophosphorus, 18%, electric or blast furnaces, f.o.b. Anniston, Ala., carlots, with \$3 unitage freight equalled with Rockdale, Tenn., per gross ton

Ferrophosphorus, electrolytic, 23-26%, carlots, f.o.b. Monsanto (Siglo), Tenn., \$3 unitage freight equalized with Nashville, per gross ton

Ferromolybdenum, 55-75%, f.o.b. Langeloth, Washington, Pa., per pound contained Mo

Calcium molybdate, 40-45%, f.o.b. Langeloth, Washington, Pa., per pound contained Mo

Molybdenum oxide briquets, 48-52% Mo, f.o.b. Langeloth, Pa., per pound contained Mo

Molybdenum oxide, in cans, f.o.b. Langeloth and Washington, Pa., per pound contained Mo

Zirconium, 35-40%, contract basis, f.o.b. plant, freight allowed, per pound of alloy ..

Carload lots

Zirconium, 12-15%, contract basis, lump, f.o.b. plant, freight allowed, per pound of alloy ..

Carload, bulk

Alseifer, 20% Al, 40% Si, 40% Fe, contract basis, f.o.b. Niagara Falls, carload

Ton lots

Simanal, 20% Si, 20% Mn, 20% Al, contract basis, f.o.b. Philo, Ohio, freight allowed, per pound ..

Car lots

Ton lots

Less ton lots

Eastern Central Western

Less ton lots .. \$1.30 \$1.3075 \$1.329

Manganese—Boron 75.00% Mn, 15-20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C.

Ton lots

Less ton lots .. \$1.89 \$1.903 \$1.935

2.01 2.023 2.055

Nickel—Boron 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni.

Less ton lots .. \$2.10 \$2.1125 \$2.1445

Silicaz No. 3, contract basis, f.o.b. plant, freight allowed, per pound of alloy ..

Carload lots

Ton lots

Silvaz No. 3, contract basis, f.o.b. plant, freight allowed, per pound of alloy ..

Carload lots

Ton lots

Grainal, f.o.b. Bridgeville, Pa., freight allowed, 50 lb and over.

No. 1

No. 6

No. 79

Bortram, f.o.b. Niagara Falls

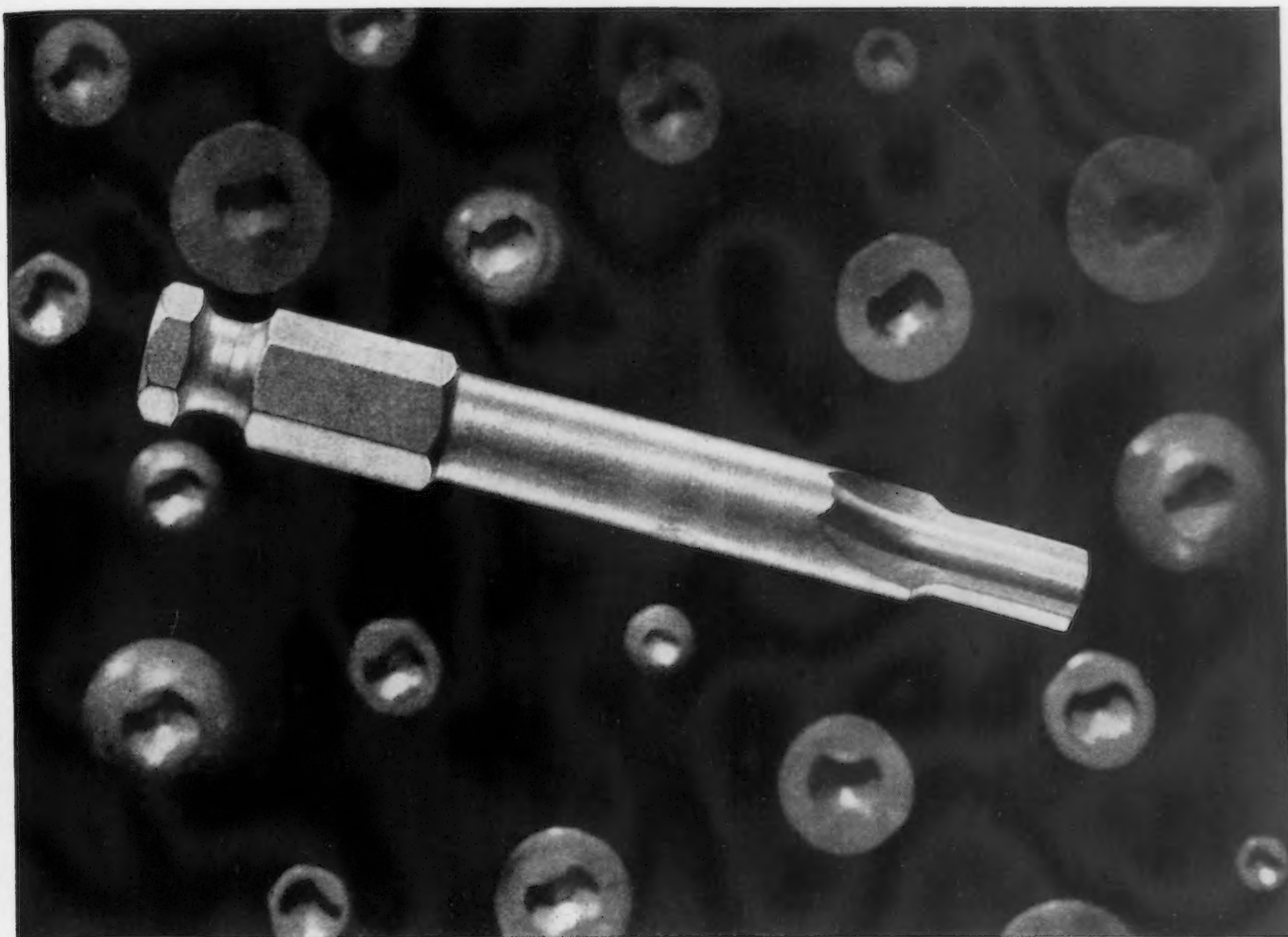
Ton lots, per pound

Less ton lots, per pound

Ferrocolumbium, 50-60%, contract basis, f.o.b. plant, freight allowed, per pound contained Cb.

Ton lots

Less ton lots



COMMON
SCREWDRIVER



How Many Thousands of Screws Per Bit?

CLUTCH HEAD users have the answer to this question . . . for that is how they measure the economy and efficiency of screw driving on their assembly lines.

The explanation of this unequalled "high-score" driving is simple. It lies in the ruggedness and design of the Type "A" Bit. This ruggedness is self-evident and is made possible **ONLY** by the mating design of the Clutch recess. This means stamina to stand up through a longer driving spell, free from tool change interruptions . . . speeding up the production tempo and rolling up the record of thousand upon thousand of extra screws per bit.

Note, too, that the driving score of this bit is multiplied time and time again because it may be repeatedly restored to original efficiency by a 60-second application of the end surface to a grinding wheel.

Other special features incorporated in CLUTCH HEAD Screws contribute importantly to greater safety, higher production, and lower costs. We invite your personal investigation of these and will send you, BY MAIL, package assortment of CLUTCH HEAD Screws, sample Type "A" Bit, and illustrated Brochure.

Being operative with an ordinary screwdriver or any flat blade of reasonably accurate width, this is THE ONLY MODERN SCREW that simplifies your field service problems.



Note the straight-walled Clutch matched by straight-sided driver for square engagement, eliminating "ride-out" tendency with hazard of slippage as set up by tapered driving.

TYPE "A"
ASSEMBLY BIT



UNITED SCREW AND BOLT CORPORATION
CHICAGO 8

CLEVELAND 2

NEW YORK 7

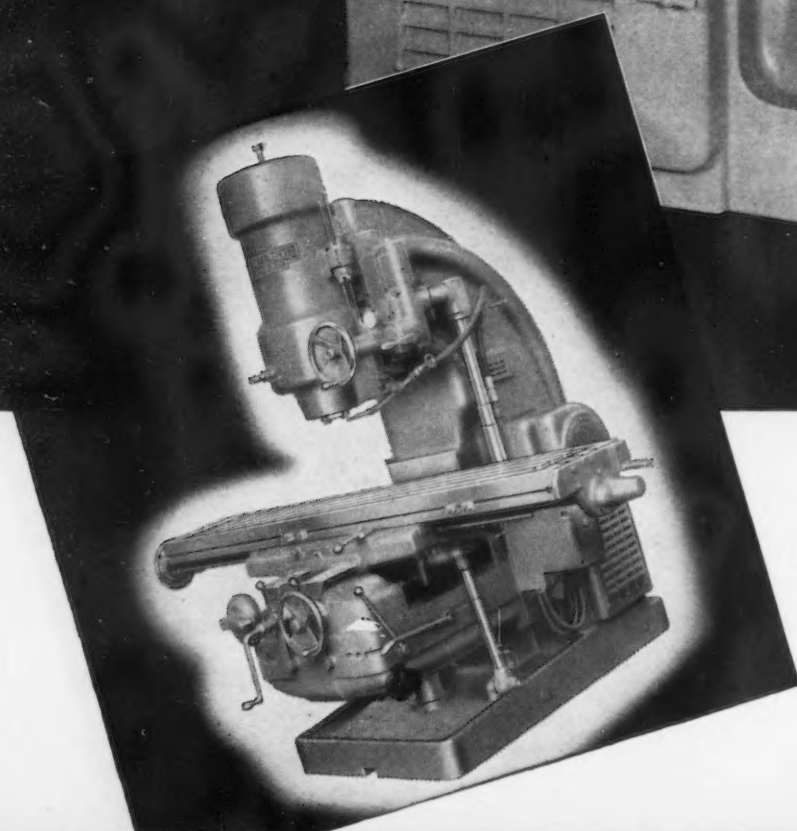
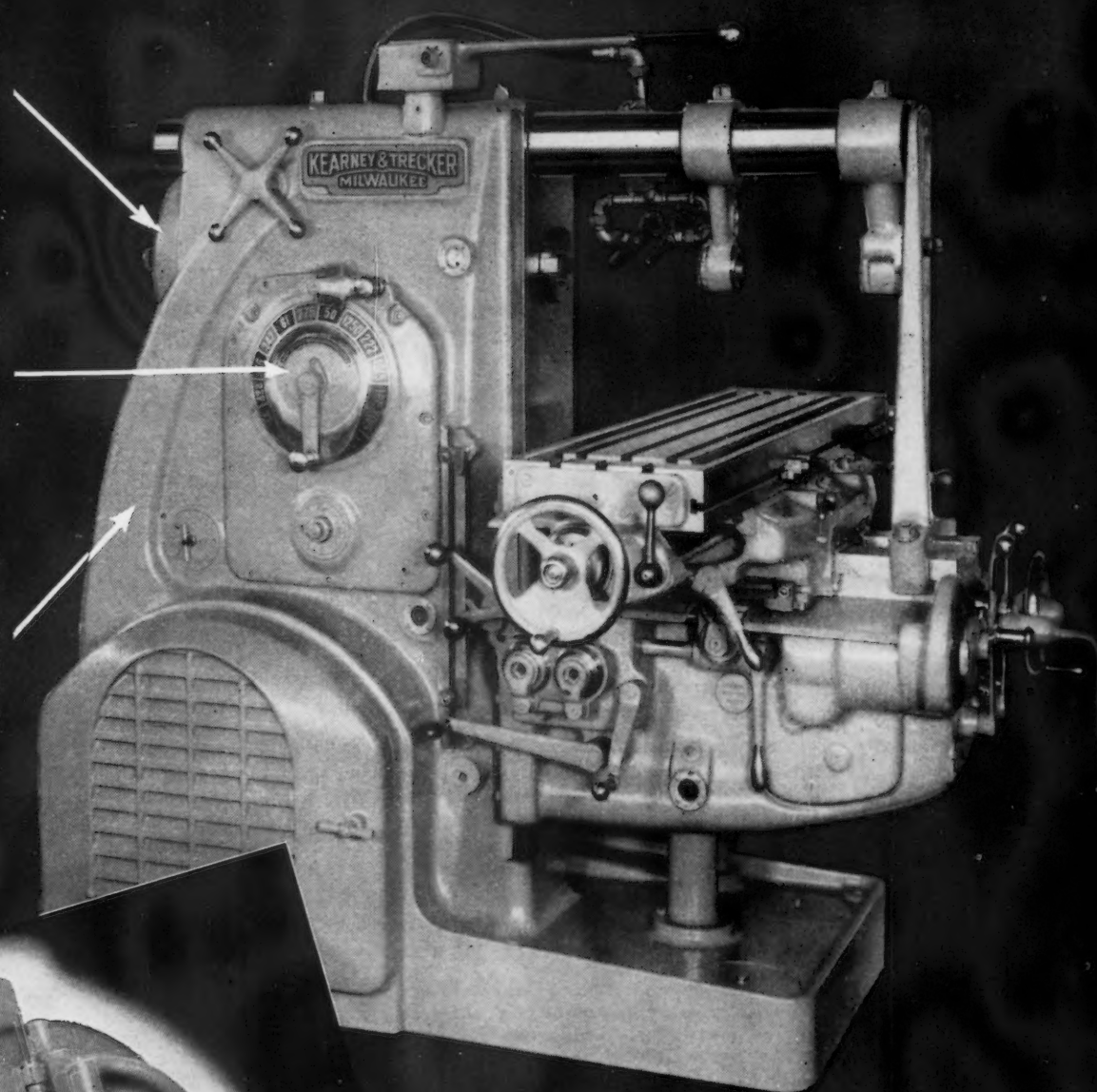
ANNOUNCING

An outstanding addition to the

Balanced Power at the cutter is assured. A flywheel is incorporated as an integral part of the center bearing spindle with its proven superiority. It assures a smooth flow of power to the cutter under all conditions.

Wide Range of work application is provided — 16 speed changes from 50-1250 rpm; 32 feed changes from $\frac{3}{8}$ inches to 90 inches per minute.

A Rugged Massive Column provides true rigidity. The heavily reinforced solid back column, with cross mounted motor, furnishes the strength and stability required for heavy duty service.



30 HP CSM HORIZONTAL knee-type machine illustrated above shows the modern, compact design, rugged construction and conveniently accessible controls. Rugged and versatile — all models in the CSM series are designed to meet the stringent requirements of the high rate of metal removal possible when using carbide cutters.

50 HP VERTICAL MODEL of the CSM Series shows outstanding efficiency and versatility of Kearney & Trecker design. Note the rugged column, the built-in flywheel, the accessible controls — insuring utmost productivity and accuracy on all jobs.

THE CSM'S . . .

Kearney & Trecker Milwaukee Line!

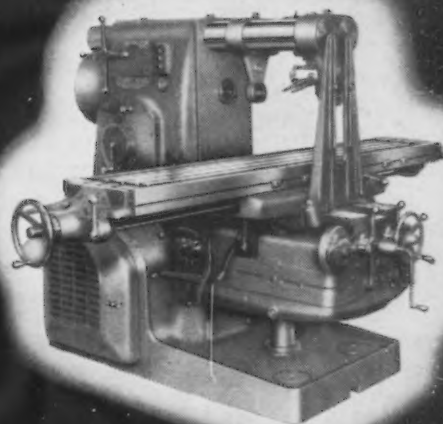
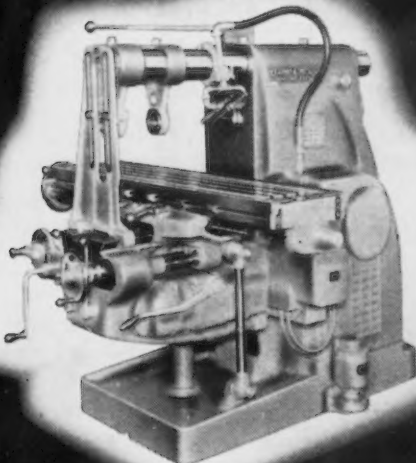
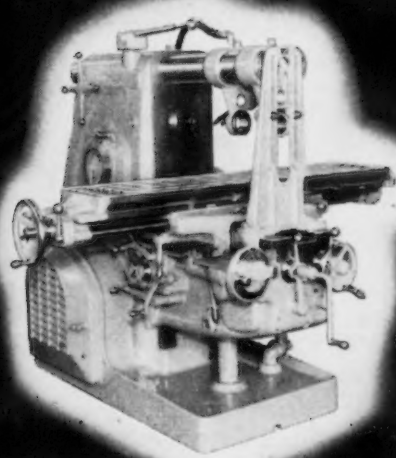
New Series of CSM Knee-Type Milling Machines Now Cuts Production Hours to Minutes Over a Wide Range of Jobs!

A complete series of CSM Machines, high powered for carbide milling of steel — machines that will handle regular milling jobs as well — this is Kearney & Trecker's latest contribution to modern milling equipment.

Pioneered and developed by Kearney & Trecker research engineers, the CSM machines embody the newest and finest in design and engineering features to meet the requirements of modern carbide milling of steel: 1) Solid-back column gives powerful support and rigidity to entire machine; 2) a large, heavy flywheel is an integral part of

the spindle, and assures smooth, balanced flow of power to cutter from 20, 30, or 50 hp motor; 3) Wide range of speeds and feeds are carefully selected to match work requirements.

Time-tested operating and performance features of the famous Kearney & Trecker "K" Machines have also been included to give you the finest in up-to-date milling machine construction and operation. CSM Machines are available in both horizontal and vertical knee-type models. For complete information, write for descriptive catalog.



A complete series of power rated machines, in horizontal and vertical models, to meet your requirements.

20 CSM Horizontal—a 20 hp machine with 28" or 34" table travel.

30 CSM Horizontal—a 30 hp machine with 34" or 42" table travel.

50 CSM Horizontal—a 50 hp machine with 42" or 52" table travel.

*Write today for Complete Information
on these New Machines*

**KEARNEY & TRECKER
CORPORATION**

MILWAUKEE 14, WISCONSIN

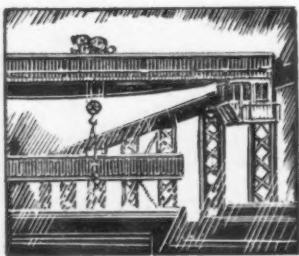




STURDY LOAD LIFTER

• Never jerky, never faltering—tirelessly handling the most delicate loads as if picked up and placed by nimble fingers. This is the dependability of Shepard Niles Hoists—built with the staying power of a champion for constant load-handling with precision and safety.

Manufacturers want the most efficient, most economical handling equipment they can buy. Now more than ever this equipment must fit their particular handling requirements. Shepard Niles Hoists handle loads up to their full rated capacity with a minimum of maintenance cost—giving long durable service.



SHEPARD NILES CRANES are advanced in performance and in every detail of construction—a real contribution to efficient load-handling. They are designed and constructed to sustain high efficiency throughout a long, rugged life. Engineered construction gives dependable, smooth operation at low cost.

Shepard Niles

CRANE & HOIST CORPORATION

To assist you in selecting such a competitive advantage as economical load-handling, Shepard Niles offers you the use of its engineering facilities and staff—without obligation.

356 SCHUYLER AVENUE • MONTAUR FALLS, N. Y.

150—THE IRON AGE, April 4, 1946

Terminate 11,800 War Contracts in February

Washington

• • • Director of Contract Settlement, H. Chapman Rose has announced settlement in February of 11,800 terminated war contracts involving canceled commitments of \$2.7 billion, trimming from 52,800 on Jan. 1 to 30,700 the number to be settled. Claims have been filed against 13,200 of this total. However, Mr. Rose said a large dollar value in canceled commitments is represented by the 17,500 terminations still awaiting action by contractors. He re-emphasized the necessity for immediate filing of the remaining claims. As in January most of the February cases were settled by the War Dept., which completed 6159 fixed-price terminations with canceled commitments of \$2 billion and 28 cost-plus-a-fixed fee terminations with canceled commitments of \$381 million.

Contractors were allowed \$483 million on claims settled in February as contrasted with \$291 million in the previous month. Plant clearance activity continued to cut down the backlog of uncompleted requests. More than 20,400 clearances were completed in February, leaving 14,800 requests pending.

Partial payments outstanding at the end of February totaled \$930 million which was slightly less than at Jan. 31. However, the new applications submitted in February, numbering 1242 for \$136 million, continued the downward trend of recent months.

Cast Radiator Prices Up

Washington

• • • Effective Mar. 28, OPA has authorized a price increase of 7¢ per sq ft for manufacturers of cast iron radiation. This amounts to a net increase of 5.65¢ per sq ft after customary discounts to distributors.

The action permits distributors to pass on the actual dollar-and-cent increase (rounded to the nearest ½¢ a sq ft in accordance with the industry's practice). The increase will be reflected in somewhat higher prices charged the ultimate buyer by plumbing and heating contractors.

A Cordial Invitation

*to the Foundrymen of America
and to Production Executives of Foundry Departments*

You are most cordially invited to attend, May 6 - 10 in Cleveland's Public Auditorium, the sessions of the Golden Jubilee Foundry Congress of the American Foundrymen's Association and to see and examine, at the largest, most representative of Foundry Shows, equipment, products and services designed to assist you to achieve a greater output of better castings at lower production costs.

American Foundrymen's Association

***222 West Adams Street
Chicago 6, Ill.***

To reserve exhibit space at the Golden Jubilee Foundry Show — the *golden opportunity* foundry show—wire or phone A. F. A. today.

CLARK *Electric*

battery powered

FORK TRUCKS



Priced on Basis of
Clark Volume
Production

Lifts

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Write for
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CLARK TRUCTRATOR

Division of CLARK EQUIPMENT COMPANY
BATTLE CREEK, MICHIGAN

OTHER PLANTS — BUCHANAN, JACKSON, BERRIEN SPRINGS, MICHIGAN

Products of CLARK • TRANSMISSIONS • ELECTRIC STEEL CASTINGS
AXLES FOR TRUCKS AND BUSES • AXLE HOUSINGS • BLIND RIVETS
INDUSTRIAL TRUCKS AND TRACTORS • HIGH-SPEED DRILLS AND REAMERS
METAL SPOKE WHEELS • GEARS AND FORGINGS • RAILWAY TRUCKS

SEE OUR EXHIBIT AT THE FOUNDRY SHOW — CLEVELAND — MAY 6 TO 10

NEWS OF INDUSTRY

Program of Subsidies To Pig Iron Producers Under Consideration

Washington

• • • A broad program of subsidies to producers of pig iron is under consideration here in order to bring production to a point where it meets current requirements. It would extend further the aid in cost absorption that is reported as being given now to a few furnaces.

Although frequently rumored, planning of such a program was never officially confirmed until CPA Administrator John D. Small testified on Mar. 26 before the Senate Banking and Currency Committee. This, he held, appeared to be the only way in which the additional 1 million tons of pig iron needed for the Wyatt emergency housing program could be obtained.

As worked out by CPA, the subsidy payments would be awarded in successive stages as the consuming industry expanded—first, to those producers needing the least financial help in bringing their production to capacity, then to plants needing somewhat higher payments, and finally to the high-cost plants, if necessary. The production premiums would be abandoned with changes in estimates in demand or as the scrap supply improved.

There is no hope of getting the additional 1 million tons needed by the Wyatt program at the current ceiling prices, he said, nor could this amount be diverted to housing without seriously upsetting reconversion. Yet, he added, a general ceiling price is not the answer because such increase would distort the price structure by permitting some plants to make more than adequate profits.

To Rebuild Inland Fleet

Montreal

• • • To rebuild Canada's inland freighter fleet approximately \$8,000,000 will be expended. About \$2,000,000 of the total will be spent in Montreal with the balance divided among shipyards at Kingston, Midland, Collingwood and Port Arthur. The shipbuilding program will include passenger ships as well as freighters.

Take your pick of 6

Houghton offers a complete range of drawing compounds to cover all needs

Here they are—the big six in Houghton's line-up of drawing compounds for 1946—ready to protect dies, maintain constant film between work and dies, and supply the controlled friction needed for accurate drawing of metals.

They're worthy descendants of a long line of "researched" Houghton products—all tried and proven in war production, and chosen from the many formulae developed over the years at industry's request.

Houghto-Draws are uniform, stable, non-corrosive, easily mixed with diluents, and readily removable after drawing. They are fully described in a new folder, "Drawing Compounds by Houghton," which is yours for the asking.

E. F. HOUGHTON & CO.
303 W. Lehigh Ave., Philadelphia 33, Pa.

HOUGHTO-DRAW 160—Highly pigmented compound for deep drawing. Extreme-pressure treated, contains sulphur.



HOUGHTO-DRAW 250—For non-ferrous drawing and vitreous enameling stock; contains no sulphur or pigment.



HOUGHTO-DRAW 750—Deep drawing compound containing 30% colloidal pigment of fine particle size; will not clog capillary systems.



HOUGHTO-DRAW 453—Heavy oil, E. P. treated but not sulphurized; non-staining; particularly for aluminum alloy drawing.



HOUGHTO-DRAW 431—Dark heavy oil for punching or drawing. Contains high percentage of sulphur and E. P. additive.

HOUGHTO-DRAW 340—Dark E. P. treated and sulphurized oil for forming or shallow drawing using circulatory system.



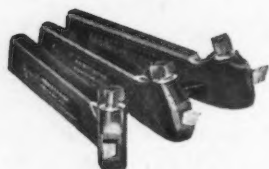
HOUGHTO-DRAW

ARMSTRONG

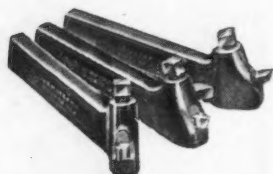


SYSTEM OF TOOL HOLDERS

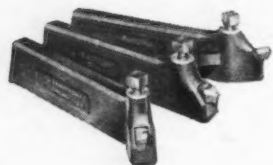
*What speed do you need?
100, 300 or 600 ft. p. m.*



ARMSTRONG TURNING TOOLS for ARMSTRONG HIGH SPEED or other High Speed steel cutter-bits.



ARMSTRONG CA TOOL HOLDERS for ARMALLOY and similar cast-alloy cutter-bits.



ARMSTRONG Carbide TOOL HOLDERS for ARMIDE and similar carbide-tipped cutters.

Whatever cutting speed is required, whatever the material to be machined, there are correctly designed ARMSTRONG TOOL HOLDERS with bits, blades and cutters of the most efficient cutting material provided by the Armstrong system of Tool Holders.

Included are:

HIGH SPEED Cutter Bits	50-150 ft. p.m.
ARMALLOY and similar cast alloy cutters	100-350 ft. p.m.
ARMIDE and similar carbide-tipped cutters	300-600 ft. p.m.

Write for New Circulars
"Armide" and "Armalo" Circulars

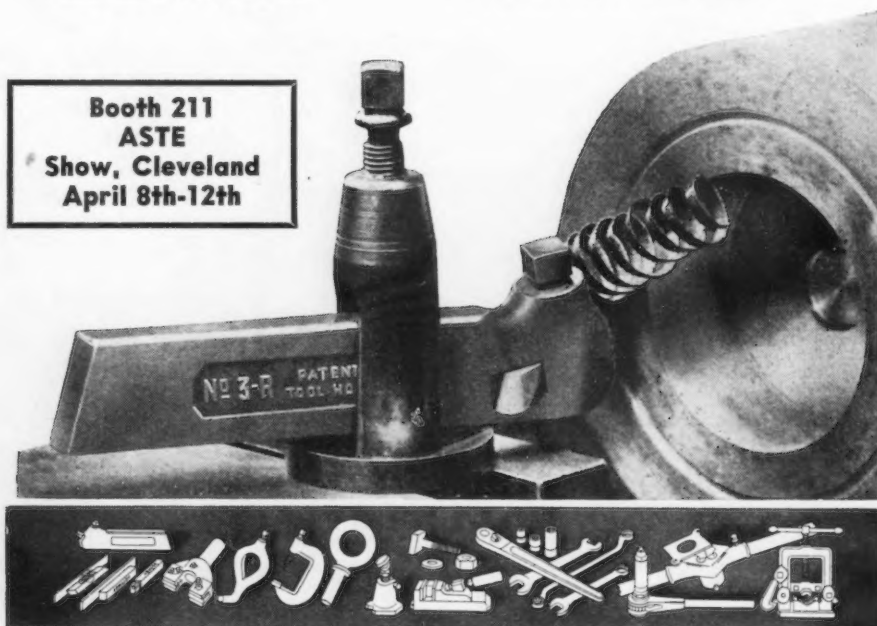
ARMSTRONG BROS. TOOL CO.

"The Tool Holder People"

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Show, Cleveland
April 8th-12th



NEWS OF INDUSTRY

Gallup Polls

(CONTINUED FROM PAGE 125)

• • • Public confidence that Russia will cooperate with this country in world affairs is found to be lower at this point than at any time during the past 4 yr, since the institute first began measuring United States sentiment toward Russia.

A majority, although a small one, fear that Russia will not cooperate with us. On the other hand, friends of Russia will be quick to point out that a substantial number either believe the Soviets will cooperate or are suspending judgment for the time being.

Studies on Russia during the past 4 yr show that American public opinion reacts very sensitively to Russian acts and to statements of Soviet leaders.

Field reporters all over the United States presented the issue to a cross-section of the voting population—with the proper proportion of workers and employers, farmers and city folks, and young and old. The question put to these voters was this:

"Do you think Russia will cooperate with us in world affairs?"

The replies:

	Pct
Yes	35
No	52
Undecided	13

In October 1945, when the same question was asked, the results were as follows:

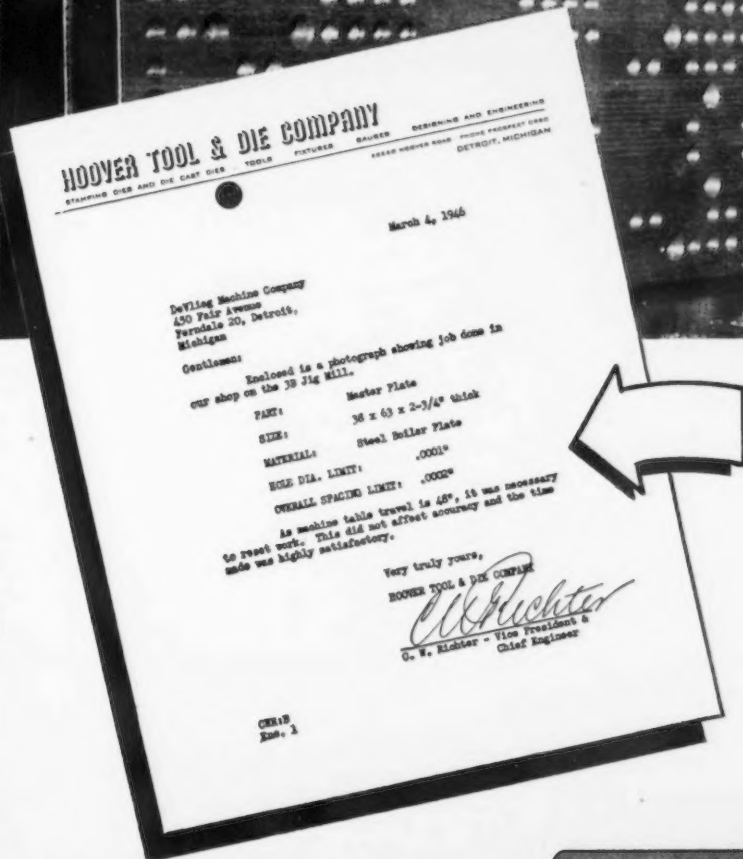
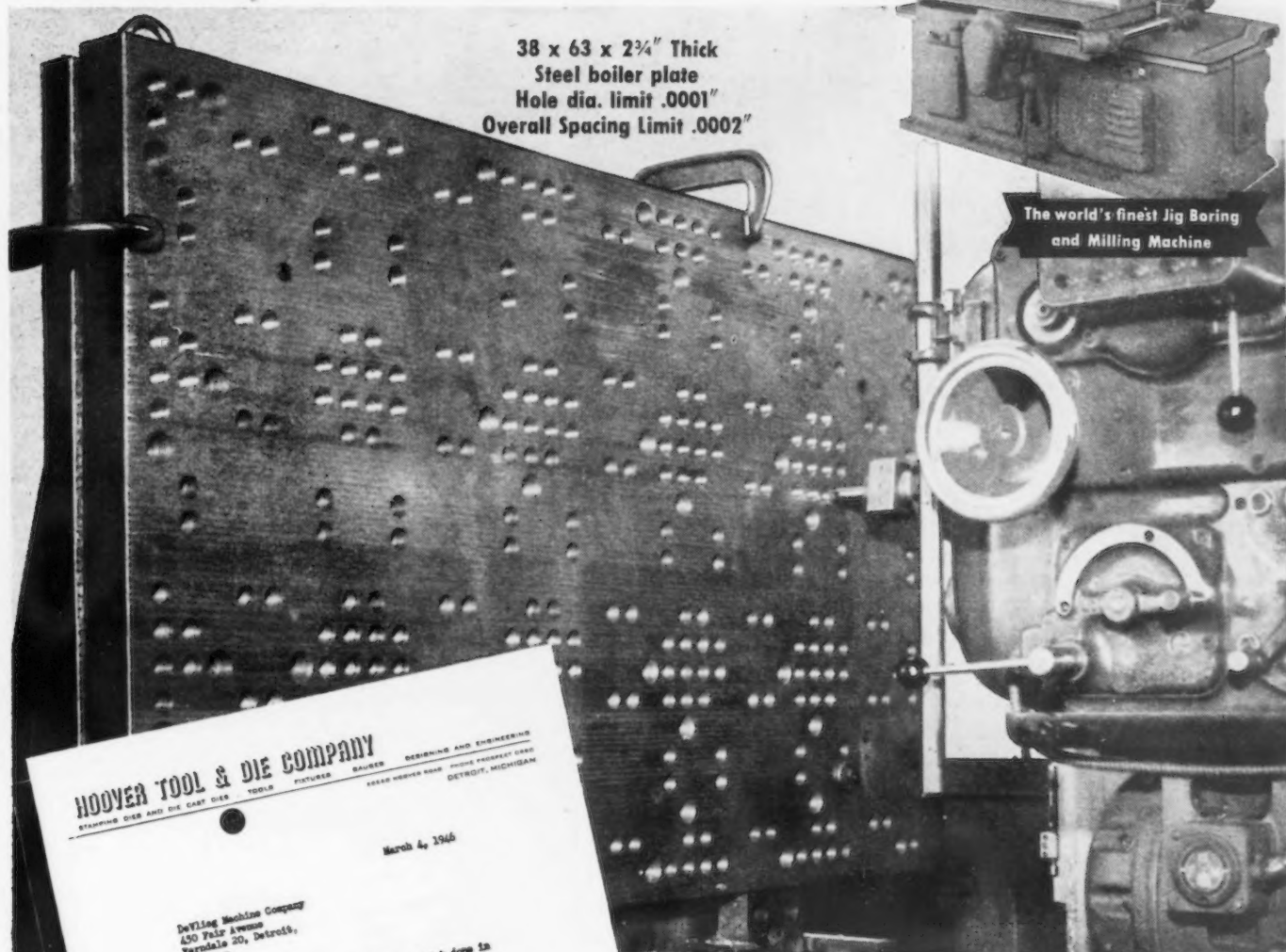
	Pct
Yes	44
No	40
Undecided	16

The following table gives a picture of public confidence in Russia from 1942 until September 1945. The question on which these figures are based is somewhat comparable to the question in the present survey, dealing with whether voters felt Russia could be trusted to cooperate with this country after the war:

	Can Trust Russia Pct	Cannot Trust Russia Pct	Undecided Pct
Mar. 1942	39	39	22
Nov. 1943	47	27	26
July 1944	47	36	17
Dec. 1944	47	35	18
Mar. 1945	55	31	14
June 1945	45	38	17
Sept. 1945	54	30	16

As the table above shows, opin-

342 holes held to .0002" limit with JIGMIL automatic positioning



Here are the results obtained by one user of 3-B DeVlieg JIGMILS on a difficult boring operation. The JIGMIL will also cut costs in your plant because:

- (1) Only one set-up required for both boring and milling operations.
- (2) Centralized Push Button Control Panel and Slide Lock Levers operated through fingertip pressure.
- (3) Automatic spacing to within .0001" of setting permits unvarying accuracy on jigs, fixtures and duplicate parts.

Technical literature available upon request. Write today.

DeVLIEG MACHINE COMPANY



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(Detroit) MICH.**



Cargo—Served Up Air Line Style!

To TWA—long one of the world's leading air lines—a single minute can mean five miles travelled in the air, or five miles lost on the ground. More than a year ago, Trans World Airline set out to shorten cargo handling time at terminals to keep pace with faster flight schedules made possible by improved aircraft.

After making a thorough study of its existing handling methods and investigating the methods and equipment used by other air lines, as well as by the Army and Navy during the war, TWA selected Towmotor Lift Trucks and Industrial Tractors, basing its choice on Towmotor's performance in handling all types of air cargo.

An unusual application of the lift truck system was worked out by TWA, whereby special 4-wheeled cargo trailers are moved in trains to plane side by Towmotor Tractors, at which point a Towmotor Lift Truck raises each trailer to plane loading level. This arrangement not only speeds up loading and unloading, but the trailer itself provides extra working space for cargo handlers, simplifying

movement of cargo in and out of the plane and expediting balanced loading, particularly important in air transport.

The use of 4-wheeled trailers with Towmotor Tractors also enables TWA to collect various types of cargo, such as baggage, air mail and air express, at separate points in the terminal and move it rapidly and safely to plane side for loading. Similarly, unloaded cargo is distributed quickly and carefully to various locations at the airport.

For every handling problem there is an engineered solution . . . a solution based upon Towmotor experience and know-how gained in solving handling problems in every industry. Send for your copy of the Towmotor Lift Truck ANALYSIS GUIDE today. Towmotor Corporation, 1230 East 152nd Street, Cleveland 10, Ohio.

TAKE IT UP WITH
TOWMOTOR
THE ONE-MAN-GANG

ion toward Russia in the United States has at times fluctuated widely within relatively short periods of time.

Thus, after climbing slowly from 1942, confidence in Russia hit a high point in Institute surveys in March 1945, when American and Russian armies were sweeping Europe.

Only three months later, when Russia at the United Nations Charter Conference in San Francisco was making demands not popular in this country, public conviction that Russia could be trusted to cooperate dropped a full 10 points.

Three months later, the doubts of many people about Russian cooperation were somewhat lessened when Russia entered the war against Japan.

In every one of the nine nationwide surveys dealing with Russian cooperation, the pattern of thinking among the various groups which make up the population remains consistent.

Rather ironically, the greatest pessimism concerning Russian cooperation prevails among those with the least amount of formal education (elementary school or less), which comprise the great part of the American proletariat, both urban and rural, to whom the Soviet proletarian ideology might be presumed to have the most appeal.

As in the other surveys, Democrats show a greater inclination than Republicans to believe Russia will cooperate with us. Young voters, 21 to 29, are more inclined than people 30 yr of age or more to view Russia's intentions optimistically.

More World War II veterans think Russia will cooperate than think she won't, although the division of sentiment in this instance is close.

The vote on the issue among principal groups:

	Yes Pct	No Pct	Unde- cided Pct
Democrats	37	49	14
Republicans	33	57	10
By Education			
College	54	38	8
High school	37	51	12
Grammar or no school	29	56	16
Veterans	45	43	12
By Ages			
21-29 yr.	38	49	13
30-49 yr.	35	52	13
50 & over	33	54	13

THESE

RACO

PRODUCTS

WILL SOLVE YOUR WELDING PROBLEMS



HEAVILY COATED ELECTRODES

STAINLESS STEEL ELECTRODES

LIGHTLY COATED ELECTRODES

<i>Mild Steel</i>	
	<i>AWS Type</i>
RACO 7	E-6010
RACO 11	E-6011
RACO 18	E-6012
RACO 13	E-6013
RACO 20	E-6020
RACO 5	E-6030
RACO Ferritic	AC-DC

<i>High Tensile Steel</i>	
RACO 74	E-7010
RACO 8010	E-8010
RACO 9010	E-9010
RACO 10010	E-10010
RACO 7011	E-7011
RACO 8011	E-8011
RACO 9011	E-9011
RACO 10011	E-10011
RACO 64	E-7020
RACO 8020	E-8020
RACO 9020	E-9020
RACO 10020	E-10020

	<i>AISI Type</i>
RACOLLOY 18-8	308
RACOLLOY 18-8 CB	347
RACOLLOY 18-12 (2-3% Mo)	316
RACOLLOY 18-12 (3-4% Mo)	317
RACOLLOY 25-12	309
RACOLLOY 25-12 CB	309+CB
RACOLLOY 25-20	310
RACOLLOY 19-9	307
RACOLLOY 430	430
RACOLLOY 330	330
RACOLLOY 502	502
RACOLLOY 18-8 (1.5% Mo)	

AC-DC, DC Titania, and DC lime coatings are supplied in all grades except 430, 330 and 502

Hard Facing Electrodes

RACO 25 AC-DC - 20-25 C Rockwell
RACO 45 AC-DC - 40-50 C Rockwell
RACO 55 AC-DC - 50-60 C Rockwell

14% Manganese Steel Electrode

RACOLLOY Manganese AC-DC

Electrode for Cast Iron Welding

RACOLLOY Ni-Nickel Deposit

Electrode for Welding ARMCO

Aluminized Steel

RACO Fer-Al AC-DC

RACO Type "D"—White Coat

Supplied in catchweight coils, rewound coils on steel bands for automatic welding or cut to 18" lengths.

RACO Type "M"—Brown Coat

Supplied in rewound coils on steel bands for automatic welding.

RACO Blue Label—Sulf Coat

Supplied in catchweight coils or cut to 14" or 18" lengths.

Oxy-acetylene Welding Rods

RACO Red Label Mild Steel

RACO Red Label Pure Iron

RACO High-Tensile (1% Mn)

Supplied in coils or cut to 36" lengths

RACOLLOY Stainless

All standard core wire analysis furnished in 36" straightened and cut lengths.

Plain Mill Finish Steel Wire in coils or straighten and cut

Wire in Coils for Submerged ARC Welding

The REID-AVERY COMPANY

INCORPORATED

DUNDALK

BALTIMORE 22

MARYLAND

SINCE 1919 PRODUCERS OF ARC WELDING ELECTRODES AND WELDING RODS

The London Economist

(CONTINUED FROM PAGE 129)

cal pressures might accumulate and explode. The continuance of an unduly low standard of living, or excessive delays and formidable hitches in the reconstruction of devastated lands, might create such a situation. The luster of victory and the misery of daily life might offer a contrast so sharp as to throw the national judgment out of balance.

If these circumstances were to arise, the relation of army to party would become more important than it is now. At present no differences between the two have been explicitly stated; the Russian chiefs of staff have not been free to formulate their own policies, and there is, outwardly, at least, a complete uniformity of view about the conduct of foreign affairs. There is much recent evidence of the party's campaign for recapturing the public veneration which was of necessity deflected from commissars on to generals during the years of battle. The party has never, in the years since Stalin took over, been geared to the idea either of ideological or physical expansion abroad. Stalin's doctrine of "socialism in one country" was designed to reconcile it to abandonment of the Leninist and Trotskyist idea of world revolution, and to settling down to a long prospect of peaceful coexistence of socialism and capitalism in the world. That that doctrine is now, once more, to the fore suggests that Marshal Stalin intends the party to remain a moderating factor in the balance of influences which shape Soviet foreign policy. But this balance between army and party may not be permanent. The army is still an untried factor in Soviet politics; it has not yet spoken above a whisper. But its influence cannot be expected to be one of moderation. Nationalism, pan-Slavism, martial glory, pride of victory and confidence in its capacity for conquest are the most striking features of its outlook. Given social discontent inside Russia, or, indeed, a European vacuum born of social rot and economic decay from the Elbe to the Channel, it might seek a chance to try its strength.

The hypotheses here set out are not to be taken as a very confident reading of the enigma.

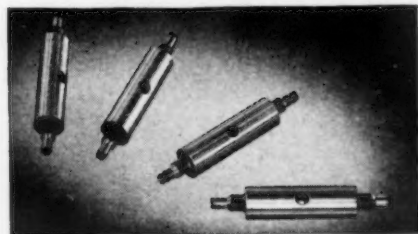


Greater Tonnage
Per Edge of Blade

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SHEAR KNIFE CO.**
HOMESTEAD · PENNSYLVANIA

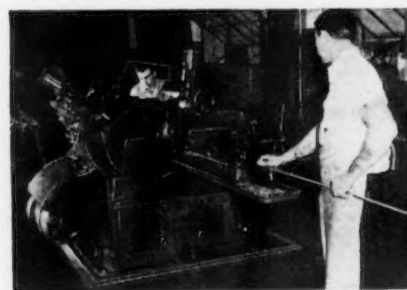
PRECISION PARTS

**RESTORING THE
BALANCE OF PROFIT**

Incredible accuracy at hundreds of pieces per hour . . . this is an important Ace achievement that can help you counterbalance rising production costs. Typical of the fine precision Ace delivers on a mass-production scale are these balance-arm shafts.

Finished so smooth that a speck of dust on it would look like a huge flaw, each shaft is ground to three diameters . . . which must be concentric to each other within .001". The small bearing surface and the angle at each end are ground on centers, while the larger diameter is centerless ground. The whole job is held to a tolerance so close that it would make your whiskers look like broomsticks.

Difficult? Expensive? Difficult to anyone without the Ace know-how. Expensive if each piece were produced without modern machinery. But here at Ace, where small parts and assemblies are being produced better, faster, and cheaper than ever before, such tasks are merely a part of the "daily grind." Here, where you get stamping, machining, heat treating, and grinding under a single roof, a single responsibility, you will also get invaluable help in restoring your balance of profit. Send us sketches or samples for prices and ideas.



Capacity open on Centerless Grinders



ACE MANUFACTURING CORPORATION
for Precision Parts

1203 E. Erie Ave., Philadelphia 24, Pa.

TOO **TOUGH** TO MACHINE?

NOT WITH THIS

JESSOP

MALTA CARBIDE TOOL

NEW TOOL CARBIDE TURNS 61 ROCKWELL C
DIE INSERT WITH 60% SAVINGS IN PRODUCTION TIME



(Photo courtesy Washington Mould Machine & Foundry Co., Washington, Pa.)

The production requirements from this die justified a JESSOP T & V non-ferrous cast alloy die insert capable of high wear resistance. Nevertheless cost of the die would have been prohibitive had it been necessary to grind the insert to required size.

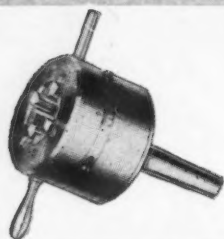
To solve this problem, Jessop research men developed a special Malta carbide tool capable of turning the hard alloy insert (61 Rockwell C) with 60% savings in production time. Cost of die was held to a minimum while assuring high die production.

This is another example whereby Jessop research has permitted the use of a better tool or die with important savings in production costs. Whatever your tool or die requirements—from carbides to water hardening carbon tool steel—Jessop offers you a complete service. Write for particulars.

JESSOP STEEL COMPANY
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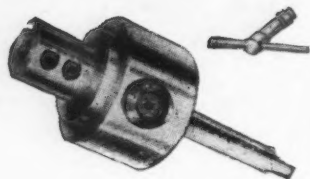
MANUFACTURERS OF HIGH GRADE SPECIALTY STEELS

Rickert FOR 35 YEARS Shafer



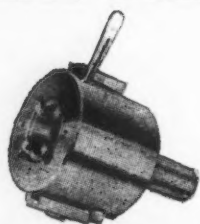
R-S MODEL "F" AUTOMATIC DIE HEAD

Reset automatically or manually with $\frac{1}{4}$ turn of handles—opens by pull-off method—stationary, the work revolves.



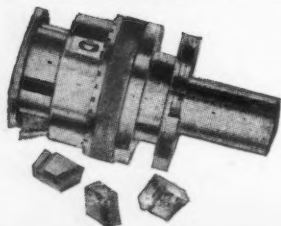
R-S ADJUSTABLE BORING HEAD

.001" Micrometer adjustment 3 sizes for any drilling, turning, or boring machine.



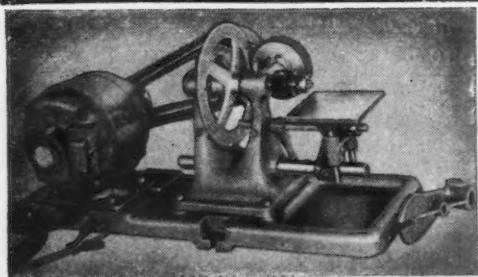
R-S MODEL "T" DIE HEAD FOR TAPER THREADING

Taper controlled exactly by profiles on outside. Leaves no chaser marks on work when Die Head releases.



R-S MODEL "C" AUTOMATIC SELF-OPENING DIE HEAD

Yoke controlled tripping and closing—revolving type. Sizes from $\frac{9}{16}$ " to 2".



R-S BENCH TAPPER

Motor driven, push to tap—pull to reverse. Sizes $\frac{3}{16}$ " and $\frac{5}{16}$ ".

RICKERT-SHAFER CO • ERIE, PA.
DIE HEADS • COLLAPSIBLE TAPS • BORING HEADS
TAPPING MACHINES • SPECIAL THREADING MACHINES

They are no more than a possible explanation of very puzzling and often contradictory facts. The explanation involves two schools of thought in the Kremlin, not necessarily crystallized into opposing parties, and still less to be labelled the views of party and army respectively. They may be no more than alternating moods in one man's mind. The dominant policy is still fairly certain one of seeking peace and security in order to pursue the ideal of "socialism in one country." But there is an opposing trend, born partly of suspicion and fear of the capitalist world, partly of a consciousness of strength and the cynical desire to exploit it. Neither party nor army is averse to seeing what can be picked up by a little old-fashioned saber-rattling. Such a policy provides common ground for both schools of thought. It meets the aspirations of both and offends the scruples of neither. As Mr. Churchill put it, the Russians do not want war, they want the fruits of war. A dictatorship, exercising the powers of censorship over its own public opinion, always has an enormous advantage over democracies in any war of nerves. The American and British publics can always be made much more frightened than the Russian public is ever allowed to become.

What, in this context, is the right course for Russia's major allies—if that formal description can still be applied? It is, of course, possible that in the brief interval between the writing and the printing of this article some major change may have occurred. For instance, Russian pressure on the Persians to sign an agreement, and to like it, may prove strong enough to break the bold and justifiable stand hitherto taken by M. Qawam, and the Security Council may face a fait accompli. Or Moscow may regret the error which has forced the United States into championship of a Middle Eastern cause, and may offer a part withdrawal. It is also possible that the Russians may produce resounding counter-charges against Persia or by delaying tactics endeavor to exhaust the Security Council's interest in the matter. Their representative, Mr. Gromyko, is a past master at referring matters back to Moscow. But if the situation remains as it stands, the members of

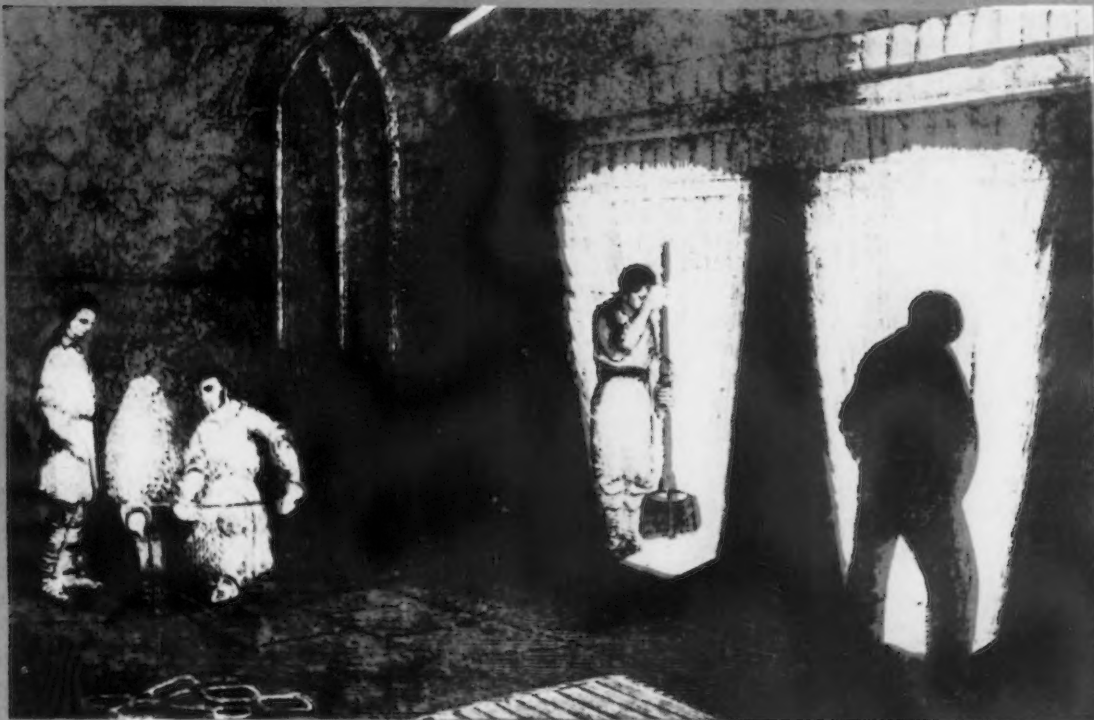


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the Council will have some difficult decisions to make. If they find some means of passing adverse judgment on Russia they run the risk of a Russian resignation. But if, under cover of some face-saving formula, they let the Russians have their way in Persia, they confess their futility and declare the bankruptcy of UNO. It is a painful dilemma, and until it is reached the hope must be cherished that the Russians will not insist on playing the game out to the bitter end. But if the choice has to be made, it can only fall one way. To subordinate both international law and legitimate national interests to an implied threat of resignation would be to convert UNO into an instrument of blackmail.

BUT a vote, whatever its result, is not an end in itself. What action can the voters take to mark their disapproval, or to stay Russian policy? Physical action taken in the name of UNO is ruled out by the veto. The United States is unlikely to do more than withhold recognition from a Per-

sian Government set up at Russian bidding. And will Russia care? The plain fact is that the Russians can afford to frighten and bully the small states on their perimeter because they can offset the drawbacks of this policy by their ability to recruit substantial pro-Russian parties in these countries as the champions of a crusade against economic, social and political inequality. Here is their strongest suit in the Middle East.

As far as Great Britain is concerned, the Persian dispute is not merely a test case for UNO. It is important for its own sake. So long as anything less than perfect amity prevails on earth, neither Russia nor Britain can afford to let the other dominate the whole of Persia. Both countries' oil interests are involved, and the appearance of Russian forces on the Persian Gulf would be as alarming to London as a British force on the Caspian would be to Moscow. Nor is America wholly disinterested if the oil of Arabia is as necessary to it as Mr. Ickes has often declared. The ideal solution is a mutual policy of hands off, and

it was this which, it was hoped, had been achieved by the Treaty of 1942.

It may not be too late to return to this basis. The statesmen who meet next week must try to do so; if they fail, the only possible solution would seem to be a temporary reoccupation of South Persia by one or both of the other members of the Big Three, coupled with a declaration of their intention to withdraw with the same speed as Russia. It is, of course, possible, that the resultant situation would crystallize into the old imperialist agreement of 1907, with the open recognition of spheres of interest and a no man's land of Persian independence in between. Unhappy and unwilling Persians might benefit, physically, if in the process both occupiers were to compete for their good will by competitive projects for their social welfare.

But because a solution could be found along these lines within the framework of old-fashioned imperialism, it does not in the least follow that it can be squared with the principles of UNO. The question that the statesmen will, in all probability, have to decide in the next few weeks is whether they prefer to restore an equilibrium between the interests of the Great Powers at the cost of resaddling a member state with foreign garrisons, or whether they prefer to leave a breach unhealed. Only Marshal Stalin can avoid this choice; and he is not the relenting kind.

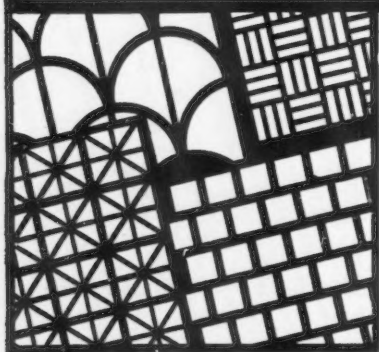
Steep Rock Slated For Major Expansion Plan

Toronto

• • • Canada's largest producer of iron ore, Steep Rock Iron Mines, Ltd., is scheduled for a major program of expansion in the immediate future, according to the company. The company's ultimate goal, it was said, is the shipment of 3,000,000 tons of iron ore annually.

Directors approved plans to bring into big-scale production a second iron ore mine at the company's Steep Rock Lake property in the Rainy River district of Western Ontario, and to proceed with the immediate financing of the new development by the public sale of 500,000 shares of capital stock.

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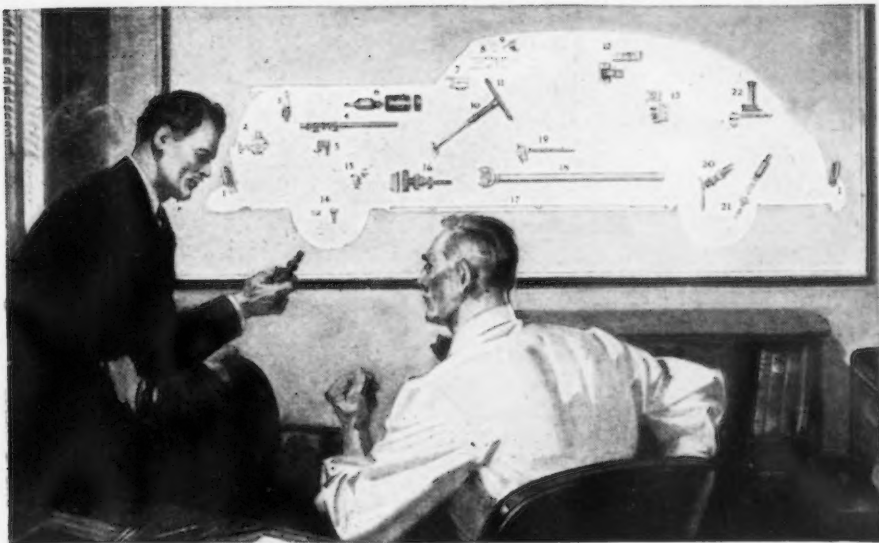
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The production of cold finished steel at J&L is integrated from raw materials to the hard, shining bars, the rounds, flats, hexagons and special shapes. Every step is controlled for quality. It is steel made to do the job, be it a gear in the water pump, the hard-working drive shaft or the special shapes that form the door hinges.

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| 1. Bumper guards—made from special shapes or ground bars. | 13. Door-lock and striker parts from special sections. |
| 2. Water-pump gear assembly. | 14. Nuts made from hexagon and special sections. |
| 3. Spark-plug parts. | 15. Grease and lubrication cups from cold drawn hexagons. |
| 4. Cold drawn tubing for rocker-arm shafts. | 16. Transmission ring-gears made from special sections. |
| 5. Piston pins. | 17. Running board treads molded in molds machined from cold rolled flats. |
| 6. Generator parts and shafts. | 18. Drive shaft. |
| 7. Control shafts on dashboard radios. | 19. Seat adjuster rods. |
| 8. Speedometer gears. | 20. Hydraulic brake connections and parts. |
| 9. J&L special precision ground stock for dashboard clock parts. | 21. Shock-absorber parts. |
| 10. Steering column from cold drawn tubing. | 22. Socket wrenches and jack (in tool kit). |
| 11. Steering wheel hubs machined from cold drawn bars. | |
| 12. Door hinges from special shapes. | |

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Spark plugs in 1902 on Cadillac car were advertised as big feature because they could be taken off for cleaning "with the greatest of facility." Even then, as now, J&L cold finished steel was popular for spark plug shells.

Machines that make machines are called machine tools. They use cold finished steels in huge quantities to make other machinery and equipment and are themselves made of cold finished steel.

Organized in 1904, the SAE (Society of Automotive Engineers) brought about standardization of specifications that aided rapid development of motor cars.

Partial fabrication of parts is offered by special cold finished shapes in which J&L specializes, resulting not only in material and cost saving but in better physicals.

Before steel, machinery was laboriously, often clumsily, handmade of iron or even wood. The marvels of the present machine-tool age became possible when steel in abundance was made available in America about half a century ago.

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Gold medal for Jalcose Steel was awarded J&L at the Philadelphia Sesqui-Centennial Exposition. This grade was later adopted by SAE.

Bequests of iron nails, along with jewels, are found in wills of wealthy American Colonists because England forbade the Colonies to manufacture articles of iron.

Measuring to 5/10,000 of an inch with delicately balanced, jeweled gauges, so sensitive a watchmaker is employed to keep them accurate, has long been the practice at J&L in production of cold finished steel.

J&L Steel Data Chart, 29 x 45 inches, shows many tables (SAE, AISI, NE, and others) of tolerances, weights, hardness, machinability ratings, heat treatments, carburizing practice and spindle speeds for cold finished steel bars. For a copy write to Publicity Manager, Jones & Laughlin Steel Corporation, Pittsburgh, 30, Pa.

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Study Prognosticates Declining Demand For American Steel in Europe

Washington

• • • While conditions are favorable for large United States exports of iron and steel during the next few years, the volume may decline in the more distant future after the war-created demand in foreign countries is satisfied.

This conclusion is reached by a report on iron and steel issued by the Tariff Commission. It is one of a series on War Changes in Industry being prepared by the commission in response to a request from the House Committee on Ways and Means and the Senate Committee on Finance.

Three circumstances are cited to indicate large exports in the immediate postwar period. They are: (1) The large backlog of demand created by the war in many countries, including the necessity of rehabilitating war devastated areas; (2) the accumulation in several of the non-European countries of large reserve funds during the war, and (3) the probable almost complete absence of competition from the major continental European producing countries in markets outside of Europe since their reduced capacity will scarcely be able to supply their own requirements and those of other continental countries.

On the other hand, from a long term view, it was pointed out that whether or not the iron and steel industries of continental Europe will be more or less efficient competitors with the United States than they were before the war, will depend on the extent of the rehabilitation of those industries and the relative technological progress in iron and steel here and abroad. United States exports of steel at that time, the report said, will also depend on the ability of iron and steel importing countries to export their own products. In turn, it was explained, this will depend on the degree of prosperity in countries to which they sell and the height of the duties and other trade barriers which those countries maintain.

"If existing rates of duty continue, the countries of continental Europe in the long-term postwar period will probably be as efficient

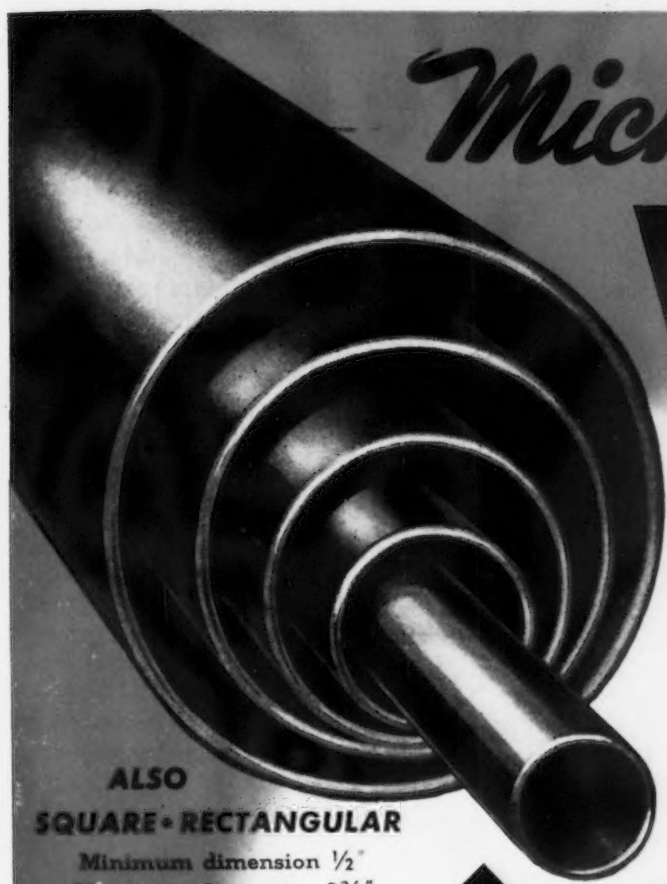
competitors in the United States market as they were before the war," said the report. "If present duties on tonnage steel should be materially reduced, the competitive position of foreign producers would be somewhat strengthened, but it is improbable that imports would be able to compete at points more than a short distance from the ports of entry.

"As in the past, relative wage rates and productivity of labor will in the future greatly affect competition between domestic and foreign producers both in the United States market and in foreign markets. Before the war the disparity between wages in the United States and in European countries was substantially offset in most branches of the industry by the greater productivity of labor in this country. Long-run trends in relative wages and productivity can scarcely be forecast.

"The competitive position of the United States steel industry both in domestic and foreign markets will be affected also by recent and future developments in (1) the supply of iron ore and other raw materials, (2) price policies and the use made of the basing-point system, and (3) integration of ownership, as well as geographical and industrial concentration of productive capacity and demand."

Before the war, the report said, United States exports of iron and steel, although relatively small compared to production, were much larger than imports. The domestic industry, located mainly in the North Central states, it was declared, has an advantage over foreign producers in transportation to the great inland markets of this country. Tariff duties, the report said, averaged about 20 pct just before the war "but they were less important in restricting imports of tonnage steel than the transportation factor."

Pointing out that when the war ended, the United States had a total ingot capacity of nearly 96 million tons, or more than half of the world's capacity, the commission declared that one postwar problem which demands immediate solution is the disposal of government-owned facilities, in which the government invested more than \$1 billion.



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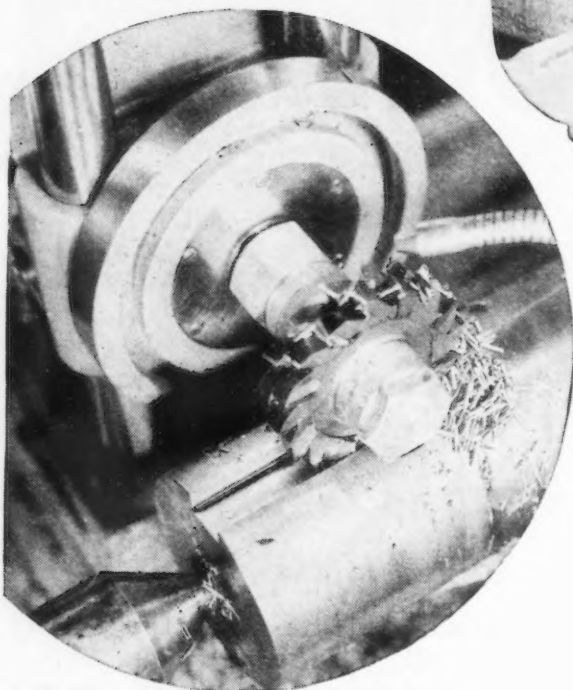
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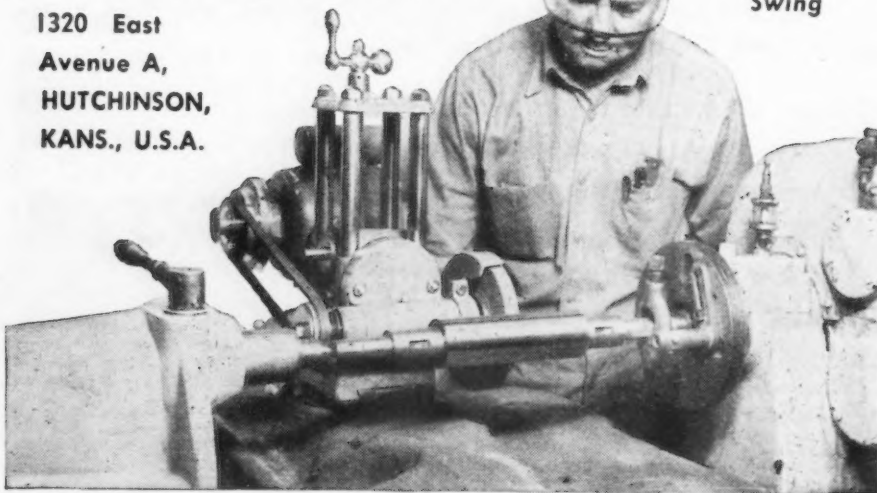
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NEWS OF INDUSTRY

State Dept. Action In Overseas War Surplus Disposal Criticized

Washington

• • • Only a comparatively small fraction of its original cost to the taxpayers may be expected to be returned to the government from the sales of war surpluses abroad, according to a special Senate committee studying surplus property overseas. The committee is headed by Sen. James M. Mead, D., New York.

Of the nearly \$316 billion worth of war production, approximately \$100 billion worth was shipped abroad for use of American forces plus \$46.5 billion to the allies under lend-lease.

Latest overseas inventories available to the committee showed a total of \$27,569,572,000 of United States property in all the theaters. Of this amount, approximately \$3,588,878,000 had been declared surplus. The figures do not include an estimated \$3.5 billion worth of Army and Navy overseas installations.

Nor do the inventory figures take account of unconsumed lend-lease items, the title of which remains with the United States under the master lend-lease agreements. World-wide figures, because of inadequate bookkeeping and lack of either an agency or procedures to recover unused lend-lease items, were not available to the committee.

Observing a growing trend toward bulk transfer of foreign surpluses to the countries wherein the supplies are located, the committee was less hopeful of substantial returns from this source.

"Considering the expense and difficulty of transporting surpluses out of the countries where they are located and the prohibitions against selling to private individuals in such countries," reported the committee, "foreign governments are in a position to acquire our surpluses at a fraction of their cost. These sales are likely to be on credit."

Part of the blame was attributed by the committee to the countries themselves and some was laid at the door of the State Dept.

"The supplies . . . were for the defense of the United States and

the allies," the report declared. "They were not exported for commercial profit. Yet, when we seek to dispose of the surplus, our government is faced with restrictions and conditions—imposed by governments of countries we had aided in preserving their very existence—far more onerous than those imposed upon commercial transactions for profit."

"The State Dept.," the report added, "failed to create favorable conditions for the sale of our surpluses located in foreign countries, or to resist effectively the imposition of onerous restrictions."

Government Will Keep Some Wartime Plants As Emergency Standby

Washington

• • • Some \$12 billion worth of wartime holdings will be retained by the government as a standby for national defense or until after the future size of the military services is determined. About \$4 billion of the total will be shipyards, arsenals and miscellaneous facilities in the industrial group; in the non-industrial category will be \$8 billion in real estate.

Government wartime holdings in real property, including machinery and equipment in the plants, are estimated at approximately \$30 billion, according to Brig. Gen. John J. O'Brien, assistant WAA administrator. Industrial properties account for \$18 billion and the remainder is in real estate.

War Assets Administration has sold or leased 364 of the government-owned industrial plants, he said, speaking before the U. S. Chamber of Commerce, and has 520 more ready for purchase or lease by private interests. The government has realized about 60¢ on the dollar on plant disposals so far, the general added, but fluctuating conditions of the future are certain to alter this figure.

In addition to the properties already disposed of or on the block, there are 700 more plants which are expected to become surplus. Emphasizing WAA's desire to speed disposals, General O'Brien said it wasn't necessary for interested buyers to wait for surplus declarations.

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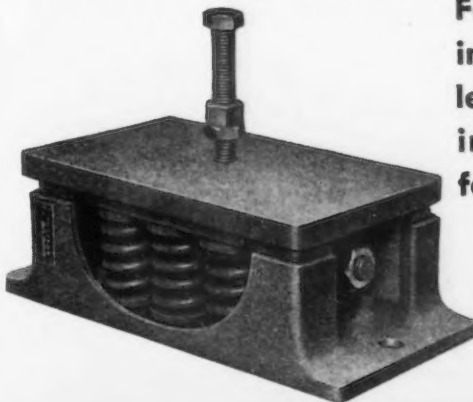


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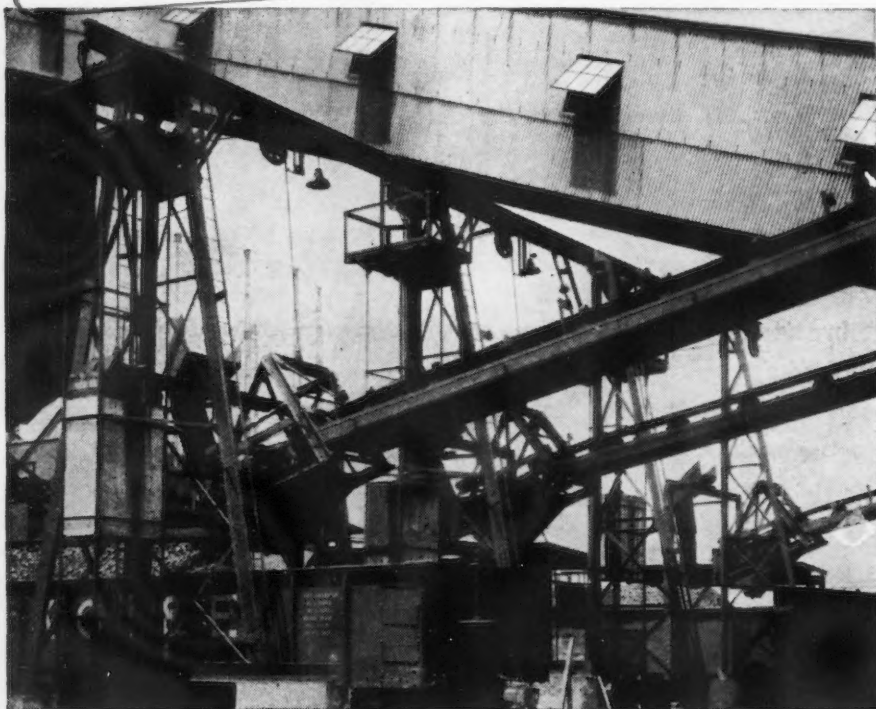


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168—THE IRON AGE, April 4, 1946

sale or lease of a tract of land or a plant even though it has not been declared surplus and a plant may still be in operation," he said.

Breaking down the plant holdings into major categories, the general revealed that it included 92 aluminum plants that cost \$376 million; 285 iron and steel plants at an investment of \$1,311,742,562; 11 magnesium plants built for \$370 million; six oil pipelines for \$161 million; and 94 chemical plants costing \$3,408,090,000.

In some fields, he pointed out, disposals are made more difficult by reason of certain existing conditions or restrictions. One example is the lack of demand compared with productive capacity; another is the anti-trust laws which bar some buyers. In such cases, special sales programs must be worked out.

Alcoa Hopes to Make Byproduct Iron From Oregon Laterite Ore

Pittsburgh

... Aluminum Co. of America, through its mining subsidiary, Alcoa Mining Co., plans to bring high grade limestone from Alaska into the Portland-Vancouver area, according to C. S. Thayer, works manager of Alcoa's Vancouver, Wash., works. A market survey of limestone and limestone products conducted by Alcoa in recent months has indicated that there is a real need for an abundant supply of high grade limestone in this area.

Mr. Thayer pointed out that the manufacture of alumina requires either limestone or lime, depending on the process used, and that Alcoa's interest in limestone is, therefore, twofold: As a potential future consumer itself of substantial quantities of limestone or lime, and to serve as a source of supply for other important industries.

Alcoa's geologists have been at work for some time trying to locate suitable deposits since none of sufficient size and satisfactory composition is available in the Portland-Vancouver area. They have been successful in locating deposits of high grade limestone in Alaska. Geological and engineering studies are proceeding rapidly.

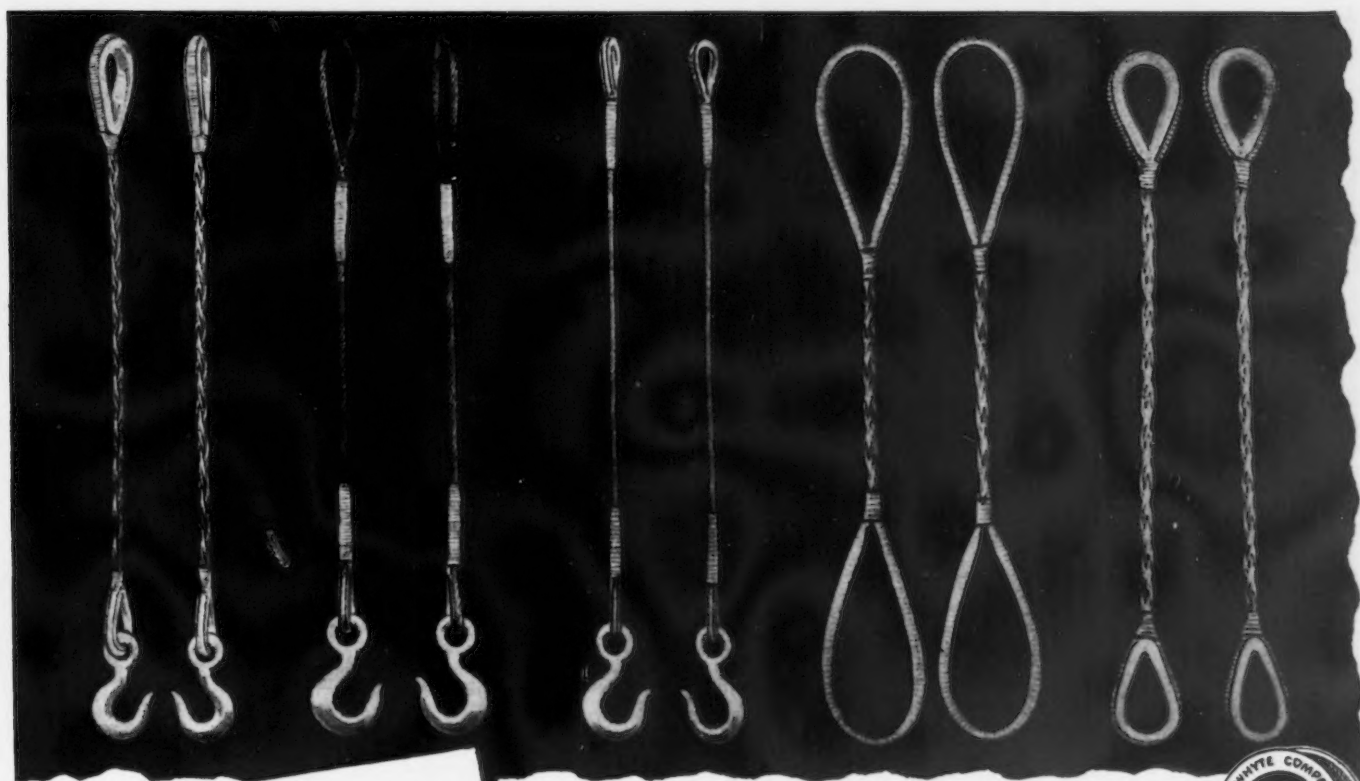
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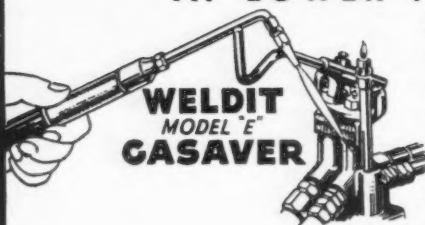
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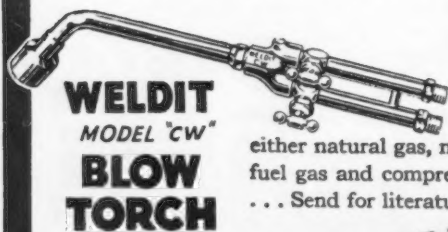
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The Weldit Model CW Blowpipe is in daily use by many foremost industrial plants. . . . Built in accordance with the recommendations of leading fabricators of sheet metal products. . . . Operates on either natural gas, manufactured gas, or other low temperature fuel gas and compressed air. Stands up under rough shop use. . . . Send for literature.

WELDIT

INC.

641 BAGLEY AVENUE • DETROIT 26, MICH.

its pilot plant experiments on the utilization of low grade laterite found in Oregon. Mr. Thayer stated, "While this laterite is much lower in alumina than even the lowest grade bauxite used in Arkansas during the war for the manufacture of alumina, the Oregon material has a high percentage of iron oxide, and in the process being developed by Alcoa for the extraction of the alumina, it is hoped that marketable iron can also be produced."

One of the problems confronting Alcoa is the production of the by-product iron in such forms and grades as will meet existing and anticipated requirements in the Pacific Northwest. According to Mr. Thayer, it is also possible that a residue with a high lime content will be produced from this process which can be used for agricultural purposes.

"As we now see it," Mr. Thayer said, "the utility of byproducts will play a major part in determining the commercial potentialities of laterite; and it will probably be necessary to limit the production of alumina from laterite to that amount which will correspond to the quantity of iron that can be disposed of, making up the deficiency in the supply of alumina for our local requirements by the use of high grade bauxite." The making of alumina from Oregon laterite in conjunction with Alaska limestone should help develop the resources of the Northwest and make the aluminum industry more nearly a home industry.

Consider H-R Strip Mill

Sydney, N. S.

• • • Following recommendations of the MacGregor Dawson Royal Commission, Canadian authorities are giving consideration to the location of a hot-rolled strip mill at the local plant of Dominion Steel & Coal Co. It is stated that curtailment of deliveries of secondary steel materials from the United States owing to the steel strike across the line has resulted in new demands for new steel units here.

Canada depends on the United States for 75 pct of her tinplate alone, a product which could be manufactured in the proposed plant.

Essential Cadmium Uses Protected by CPA Rule

Washington

••• Special priorities assistance for essential users of cadmium has been provided by CPA through revocation of M-389 and the simultaneous establishment of a specific list of products in which "CC" ratings may be issued to procure the metal. The list is carried in a newly issued Direction 13 to PR 28. Under the former cadmium order (M-389), all users of cadmium were on an equal basis and there were no provisions made for essential users.

Among the essential products on which "CC" ratings may be assigned are alloy bearings; cadmium impregnated for uses as contacts in electric current interruption devices; copper base alloys; lead base alloys for coating of copper wire; low melting point alloys for specified uses; silver brazing; silver for uses as contacts in electric current interruption devices; type metal and zinc base for rolling only.

Manufacturers of cadmium containing or cadmium plated items not specifically mentioned in the direction may apply for "CC" ratings if assistance is necessary, CPA said.

Combustion Group Formed

Chicago

••• The Internal Combustion Engine Institute, formed 15 yr ago, has been reactivated after being temporarily disbanded during the war, and an office established at 201 North Wells St., Chicago.

Gordon Spice, formerly with Chrysler Corp., has been named executive secretary of the Institute, which is composed of commercial gasoline and diesel engine builders.

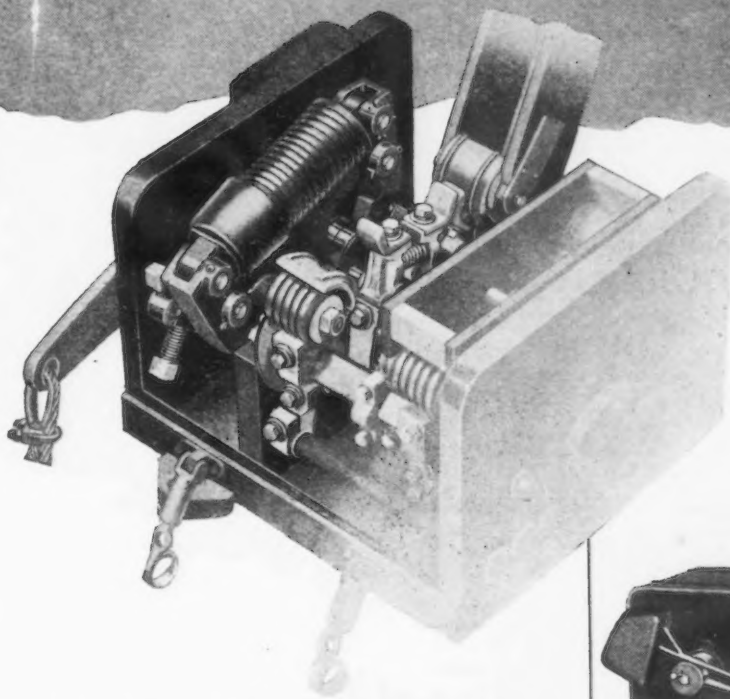
Officers elected at the last annual meeting are H. A. Todd, Wisconsin Motor Co., president; J. E. DeLong, Waukesha Motor Co., vice-president; R. Meloy, Novo Engine Co., secretary; and H. W. Smith, Caterpillar Tractor Co., treasurer.

These officers, together with E. V. Oehler, Briggs & Stratton Co.; Wayne Thomas, Continental Motors Co., and William Parrish, International Harvester Co., comprise the executive committee.

Improved

PROTECTION for CRANE HOISTS AGAINST OVERTRAVEL

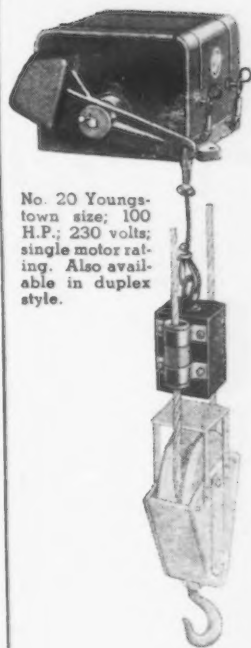
with EC&M SAFETY LIMIT STOP



- 1 No lubrication required—Oilite bearings (with super-oilite on main bearings) are self-lubricating and long-lived.
- 2 Compact—easy to mount—Reduced, overall dimensions—three convenient mounting holes, and but one suspended weight.
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This No. 20 Youngstown Limit Stop can be easily installed on new or old cranes, either alternating or direct current operated.



No. 20 Youngstown size; 100 H.P.; 230 volts; single motor rating. Also available in duplex style.

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1032

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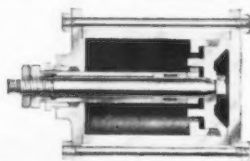
Hannifin Air Cylinders combine precision construction and simple outside adjustment of the piston packing—two features providing for uninterrupted performance and greatest useful work from compressed air supply. All sizes of Hannifin cylinders are bored and honed to produce a smooth, round, perfectly finished cylinder interior. The soft, graphite treated piston packing can be adjusted simply and easily, from outside the cylinder, so that a high efficiency piston seal can be maintained consistently. Leakage and waste of air power can be easily prevented and friction losses kept at the minimum.

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HANNIFIN PNEUMATIC CYLINDERS

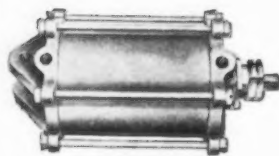
172—THE IRON AGE, April 4, 1946



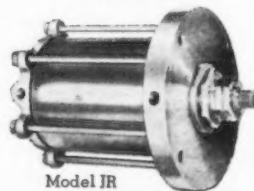
Sectional View



Honed bore
of a 16 inch,
7 ft. cylinder



Model BR



Model IR

Many other mountings available

Auto Manufacturers Call for End to All Bars to Foreign Trade

Detroit

• • • Eighteen recommendations for the expansion of foreign trade around the Reciprocal Trade Agreement program have been outlined by the Automobile Manufacturers Assn.

In a broad statement to Congress and government agencies interested in foreign trade policy, the first issued by an organization representing a major industry, the AMA called for the "fullest use" of existing governmental powers to eliminate restrictive tariffs, quotas, exchange blocs and other "artificial barriers to the free movement of trade."

Pledging itself to seek equality of treatment for all motor vehicle manufacturers in foreign markets, the AMA recommended that the American government ask foreign countries levying customs duties against motor vehicles to apply such duties on a value basis. Existing systems which make assessments on a weight basis, or other inequitable grounds, favor one type of vehicle as compared with another in the same price range.

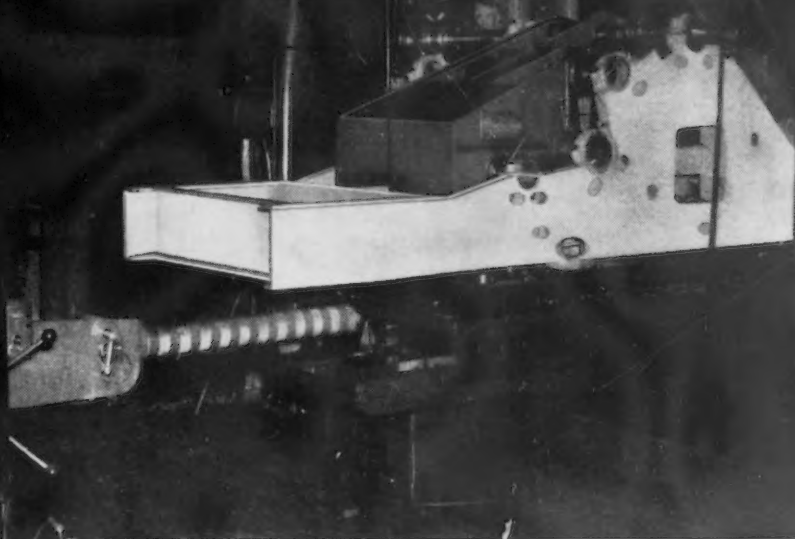
The AMA recommended that in negotiating reciprocal trade agreements the State Department should encourage foreign governments to eliminate automotive import license systems and import quotas, and gasoline and horsepower taxes that hamper motor vehicles use abroad.

The AMA also asked that the government terminate controls on export shipments of automotive products, "at the earliest date consistent with the purpose of American foreign policy."

In another series of recommendations, it is requested that treaties of friendship and commerce be concluded with foreign governments to give protection to American foreign traders and investors, and that foreign trade services of this country be extended and improved.

A number of recommendations suggest technical changes to facilitate automotive exports, such as simplification of regulations covering export declarations and

WELDING WITH AN EYE TO MACHINING



'Know How'

makes the hard jobs look easy!

● Sub-assembly construction makes for ease in welding and handling the smaller units. Push-button control on positioner and platform combination (*shown above*) insures faster down-hand welding at all points on the structure.

On the horizontal boring mill (*right*) the same part is nearing completion. Twenty-four holes bored—twelve holes spotfaced

and backfaced—from the same side, using a bar-holding fixture, obviates reversing the job or changing setup.

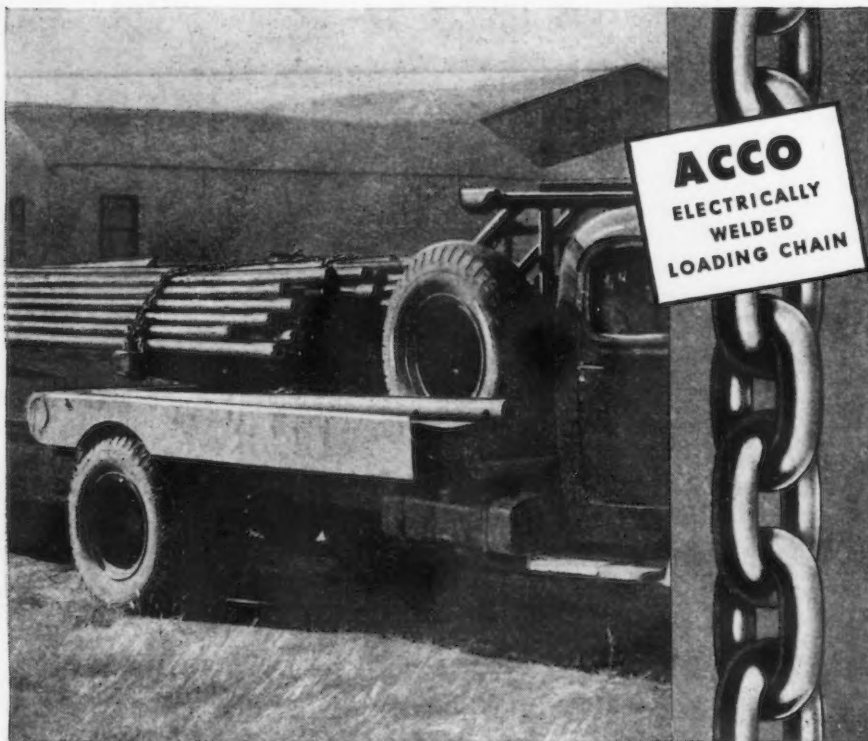
Danly facilities combined with Danly "know how" gained in over fourteen years of heavy weldment production make the hard jobs look easy—produce accuracy in the weldments that leads to faster machining—complete the job at lower final cost.

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NEWS OF INDUSTRY

adoption of uniform ocean bills of lading by American shipping companies.

In normal years the automobile industry is the principal exporter and importer among manufacturing industries in this country.

One out of every ten American motor vehicles produced in 1937, for example, or a total of 272,503 passenger cars and 203,411 trucks valued at \$383,874,000 were sold abroad. Approximately 51,000 persons or 10 pct of all the workers in the industry were employed in the production of these vehicles.

About 300 products, all relatively important, from 56 countries were imported into the United States before the war for the manufacture of motor vehicles. These include such items as rubber from the Straits Settlements and the Dutch East Indies; tin from Malaya and Bolivia; chrome ore from South Africa; asbestos and nickel from Canada; and kapok from Sumatra.

From the beginning of the war in Europe to Oct. 1, 1945, approximately 1,100,000 military vehicles valued at \$2,390,000,000 were shipped as lend-lease or sold to Great Britain, Russia, France, China and other allied countries. As a result, the value of this country's automotive equipment is more widely known than ever before, and a huge potential market has been developed.

The full text of the AMA statement on foreign trade policy follows:

The Automobile Manufacturers Assn., through its Export Committee, is dedicated to the promotion and betterment of motor transportation in all countries of the world. To this end, the association accepts and fully endorses, as being basic to the conduct of this country's foreign trade, the "Declaration of Principles" of the National Foreign Trade Convention of 1945.

As supplemental to these principles and pertaining particularly to the export of automotive equipment, we declare ourselves as adhering to the following policies:

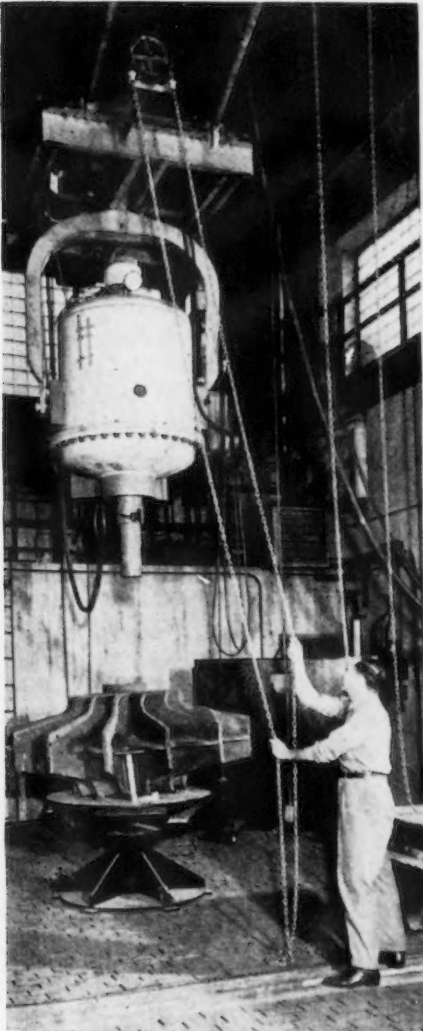
(1) Believing that an increased volume of both exports and imports, if kept within reasonable relation, will contribute to an improved internal economy, this association urges the expansion of our foreign trade

and asks the government to seek this objective by means consistent with benefits to the country as a whole.

(2) The association repeats its previous endorsement of the Reciprocal Trade Agreement program, and urges the fullest use of its powers, in the revision of existing treaties and in extending the agreements to additional countries, to exclude discriminatory and restrictive tariffs, quotas, exchange blocs, and other artificial barriers to the free movement of trade.

(3) Systems of applying customs duties to automotive vehicles on a weight basis, or on a sliding scale, according to stipulated price classifications, result in an unfair assessment on one type of vehicle as compared with another. The association there-

TAKE A GOOD LOOK: A worker is shown lowering Bethlehem Steel Co.'s new million volt X ray tube into position prior to testing a steel casting for possible defects.



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ONLY JOB

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We have the facilities:—A plant equipped with the most modern machine tools necessary for the quantity production and prompt delivery of precision gears custom-cut to your own specifications.

We have the background:—More than 25 years' experience in producing such gears for manufacturers of products the names of which are household words throughout this and other countries.

For prompt action on gear estimates and gear production, communicate with us now.

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Here's A Practical Way to Test Manganese Steel Chain . . .

NEWS OF INDUSTRY

Austenitic manganese steel chain has an initial cost a little higher than ordinary chain, *but in the severest service it has given twice to ten times the service life*, which makes it highly economical in the long run. It is impossible to realize the difference in performance until you have actually used chain made of "the toughest steel known."

A convenient and practical way to ascertain whether manganese steel chain will save you money is to inspect the elevator and conveyor chain in your plant. Where you find weak links which will soon need replacement, order Amsco manganese steel links to replace them. Amsco chain

ganeese steel links with those you have been using, you can accurately determine which are lowest in ultimate cost. This experiment is well worth while, as it has pointed the way to substantial reductions in chain costs in steel plants, mines, cement, lumber and pulp mills, quarries and in general industry.

One reason for the superior performance of Amsco chain is found in the properties of austenitic manganese steel. Presenting a test-bar tensile strength of 125,000 lbs. p.s.i. (average test) and a developed-in-service surface hardness up to 550 Brinell, combined with a ductile, shock-resistant body metal, Amsco chains with-

fore recommends that our government strongly promote an international acceptance of the *ad valorem* basis for duty assessment on motor vehicles, as being both simple and equitable.

(4) The association urges prompt action by the Department of State to secure treaties of friendship and commerce, so drawn as to give basic protection to American foreign traders and investors, including specifically the right to travel, sojourn, trade and work within foreign countries. Treaties for the elimination of double taxation, and which insure the recognition and protection of patents, trademarks and copyrights are equally essential.

(5) The association calls for the abolition of government controls on export shipments of automotive products from this country at the earliest date, consistent with the purpose of American foreign policy.

The association further asks for the elimination of import quotas wherever this is possible through negotiation. If under temporary conditions quotas must remain, the distribution among manufacturing companies should be on an equitable basis and no company should be deprived of market participation. Furthermore, the association desires that quotas be registered in the name of the manufacturer although the permits be held and exercised by the importing dealer that holds the distributing contract.

(6) Horsepower and gasoline taxes in certain countries have hampered a healthy growth in the usage of motor transportation. The association therefore renews its recommendation of many years past, that our government, in the interest of a higher standard of living as developed through the greater use of motor vehicles everywhere, seek to secure an understanding and acceptance on the part of other nations of the uneconomic and inimical nature of the handicaps such arbitrary taxation imposed.

(7) The association goes on record that the extension of loans or credits to foreign gov-



C-120. No. 830 conveyor chain with F-25 attachments made for an automobile manufacturer.



A-190. Ten strands of Amsco No. 847 pintle type chain with K-2 attachments every other link for a California cement mill.

stand for long periods abuse that quickly destroys chains of ordinary metals.

Send for Bulletin 742-CN, "Amsco Manganese Steel Chain for Elevating and Conveying."

How Amsco-Nagle Centrifugal Pumps Resist Abrasion and Corrosion is detailed in Bulletin 940.

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and attachments are available in most standard types and sizes, all interchangeable with ordinary chain.

• By comparing the life of the man-

ernments should not, and cannot consistently, be made by any American automotive manufacturer.

(8) The present system of automotive import licenses in use by many foreign countries is highly unsatisfactory. The association recommends in the negotiations of trade agreements this system be eliminated wherever possible and where licenses must through necessity remain, consideration be given to the time required for ordering, fabrication, and shipping to destination, so as to eliminate undue expirations and renegotiations for a second issuance. Where shipment has been effected and the license expires before arrival of goods at destination, serious difficulties have arisen.

(9) The association recommends that the disposal of surplus government war stocks of American automotive products, both at home and abroad, be carried out with due consideration of the interests of American manufacturers and exporters, both at home and abroad.

(10) The association recognizes the advisability of increased technical education in the automotive industry of individuals from abroad. It is important, however, that distinction should be made between the education and training of young, qualified students who will serve the interests of an increased distribution and use of automotive products upon their return to their native lands, and the unwarranted disclosure to representatives of foreign interests of America's automotive industrial techniques, the possession of which is a valuable American asset.

(11) The association recognizes that certain countries may find it desirable to maintain in this country agencies or missions for the purchase of their automotive requirements. Nevertheless, the association calls attention to the fact that American automotive manufacturers have developed abroad and over a period of years, large and efficient organizations capable of ordering and handling the automotive products desired by any

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• Blown by air through a rubber hose, tiny granules of insulation seek out every nook and corner of walls and roof, to bar out winter's cold and summer's heat. Truly, comfort moves in on a stream of air.

For many homes, this air comes from Roots-Connersville blowers, mounted on the insulation trucks. Compact, about the size of one filing drawer, this little blower goes about its work quickly, smoothly, efficiently, to complete the job profitably.

Conveying materials pneumatically is a day-by-day job of R-C blowers. They move bulk and granular substances, such as grain, cotton seed and soda ash. Gases and liquids are distributed and measured by R-C blowers, pumps and meters. They're found in such widely varying work as:

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Their long record of successful performance comes from the dual-ability of R-C engineers to design and build blowers for any specific need. When you have a job of moving air, gas or liquids under moderate pressures, consult us without obligation.

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Whether the work is done by a small blower like this, or one of our big specially designed units, you can be sure of results with R-C equipment.



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UNIFORM HARDNESS
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**O. K. SOLID
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for maximum toughness

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Recommended for heavy plate work.

Made in 3 grades suitable for all jobs:

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NEWS OF INDUSTRY

country. These organizations can, to advantage, give proper maintenance to the vehicles once they have arrived overseas, through availability of spare parts and adequate service facilities. The association recommends that orders for automotive products be placed, wherever possible, with the overseas organizations representing the American automotive manufacturers.

(12) The association sounds a cautionary note with respect to the danger of increased ocean freight rates. It is held to be in the interests of both the shipping companies and the automobile industry that rates be kept within reasonable limits, otherwise there will be a diminished flow of export freight, including automotive products which have been an important cargo element in the past. The industry has always desired frequent sailings of fast and modern ships and is willing to pay a fair competitive rate in keeping with such service.

(13) The association recommends that the Maritime Commission use its good offices to have all American shipping companies adopt a uniform ocean bill of lading. The wide diversification of forms presently employed complicates the preparation of shipping documents and adds an unnecessary item of expense which must be reflected in the ultimate price of the product.

(14) The association recommends that the Departments of Commerce and Treasury simplify the existing complicated regulations covering export declarations of automotive spare parts and accessories. All automotive replacement parts and accessories should be considered as within a single category and not subdivided into numerous artificial sections as at present. The export statistical forms, however, should provide adequate information on parts for assembly as an export category. The simplification of this process will save time and money and facilitate the work, both of the customs officials and the automotive exporters.

(15) The association pledges

itself to seek equality of treatment for all manufacturers of motor vehicles in any and all overseas markets.

(16) The association further pledges its constant endeavor to reduce the ultimate cost of motor vehicles to the purchaser, first through efficiency and operations to obtain the lowest manufacturing costs both at home and abroad, and second, to seek through proper channels to keep at a minimum all incidental charges, such as freight, taxes, surcharges, consular and port fees, insurance, etc., consistent with proper handling and protection and fair payment for work done.

(17) The association desires to advocate and promote the building and maintenance of adequate systems of highways, roads or streets in all overseas markets, to extend the economic advantages of motor transport.

(18) In the promotion of an improved economy, the association urges the extension and improvement of government foreign trade services throughout the world and to this end recommends a standard of remuneration adequate to attract experienced personnel competent to fulfill this objective.

U.S. Gets 37 Pct Of World Tin in 1946

London

••• The Combined Tin Committee has now made further interim allocations of tin metals to be operative immediately against requirements for the first half of 1946.

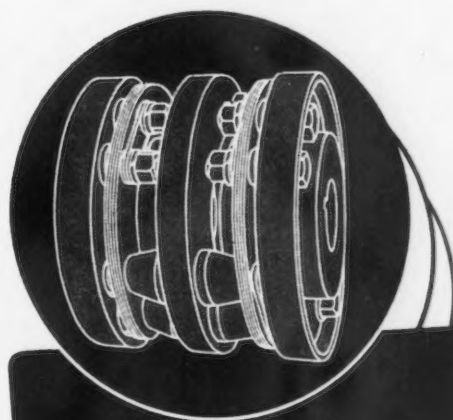
The total quantity of tin metal (in net tons) made available to the various countries now stands at: Canada 1680, Denmark 220, France 4470, India 1070, Middle East 390, Netherlands 400, Norway 240, South America 220, Sweden 220, Switzerland 450, UNRRA 3360, and United States 7450. A further interim allocation to South America will be made later.

The tonnages will generally be made available from United Kingdom or Belgian sources and in the case of South America from the United States.

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are specified by engineers wherever
100% dependability is demanded



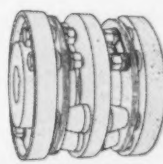
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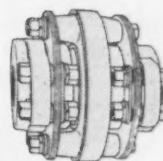
provide for
Angular and Parallel
Misalignment as well
as Free End Float...

and Eliminate
BACKLASH, FRICTION,
WEAR and CROSS-PULL

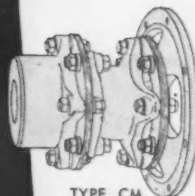
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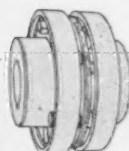
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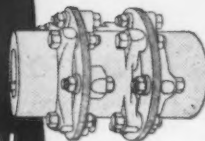
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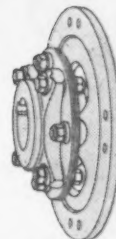
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TYPE ST

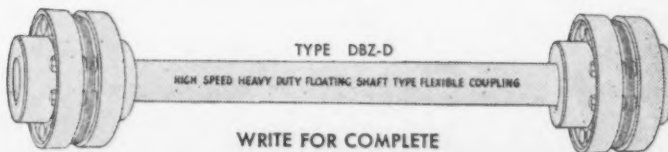


TYPE AM



TYPE SS

The Thomas All-Metal Coupling
does not depend on springs, gears,
rubber or grids to drive. All power
is transmitted by direct pull.



TYPE DBZ-D

HIGH SPEED HEAVY DUTY FLOATING SHAFT TYPE FLEXIBLE COUPLING

WRITE FOR COMPLETE
ENGINEERING CATALOG

THOMAS FLEXIBLE COUPLING CO.
WARREN, PENNSYLVANIA

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PORTABLE ELEVATORS

PILE ECONOMICALLY

This Hand Model REVOLVATOR is what the doctor orders for all sorts of regular and occasional piling jobs for loads up to 500 lb. where electric current is not available or the greater expense of a power driven elevator is unwarranted.

For less than \$300 you can own one of these handy machines and do away with the slow and costly "main strength" method. Has most of the valuable features of the larger REVOLVATORS except revolvable base. Load goes up easily by simple turning of crank. Machine equipped with floor lock, safety lowering speed regulator and automatic hinge lock. 26 other models for heavier and special jobs.



Fig.
11430
500 lb.
Capacity

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NORTH BERGEN, N. J.

Since 1904

ONLY 3 SIMPLE PARTS

L-R Type "A"

2 Metal Bodies,
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Corrects for misalignment, shock, vibration, pulsating loads, reversing loads, drag, end-wise displacement, backlash, etc. Extremely quiet.



L-R Type "A"
1/6 to 50 H.P.
Pat. and Pats. Pend.

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Simplicity, rugged construction and dependability are among the reasons for the wide preference for L-R Couplings. The L-R line includes couplings for every duty, 1/6 to 2500 H.P. Special couplings engineered to your specifications. Send for complete L-R Catalog and quick finding Selector Charts. Charts lead you to the exact couplings for your needs. Wire or write.

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NEWS OF INDUSTRY

Appoints Additional Approved Dealers Of Surplus Machine Tools

Washington

• • • Additional "approved dealers" licensed during the period of Mar. 1 to 15 to solicit and negotiate sales of government-owned surplus machine tools and production equipment have been announced by WAA as follows:

ATLANTA

John Rogers Co., 500 W Peachtree St., NW, Atlanta
Carlton-Hennessy & Co., 179 Peters St., SW, Atlanta
Southern Purchasing & Sales Co., 1027 N Boulevard, NE, Atlanta
Knox Corp., Thomson, Ga.

BIRMINGHAM

Turner Supply Co., P. O. Box 149, Mobile
Joe H. Brady & Associates, Inc., 1918 First Ave., N, Birmingham

BOSTON

Portland Welding Supply Co., 984 Forest Ave., Portland, Me.
Bryant Chucking Grinder Co., Springfield, Vt.
The Fellows Gear Shaper Co., Springfield, Vt.
Arthur H. MacBriar, 233 Forest Park Station, Springfield, Mass.
Reed-Prentice Corp., 677 Cambridge St., Worcester
United Salvaging Co., 511 Orchard St., New Haven, Conn.
Factory & Mill Supply Co., Inc., 176 Federal St., Boston
Colster Co., 44 Farnsworth St., Boston
A. Lee Ellis Co., 140 Federal St., Boston
Herbert L. Cummings, 8 Lowell St., Windsor, Vt.
Mill Supply Co., Bennington, Vt.
The LaPointe Plasmocold Corp., 37 Mill St., Unionville, Conn.
J. Gossman & Son, Inc., 45 N George St., Meriden, Conn.
Worcester Industrial Supply Co., 17 Thomas St., Worcester
Cone Automatic Machine Co., Inc., Windsor, Vt.
New Britain-Gridley Machine Div., The New Britain Machine Co., South St., New Britain, Conn.
Norton Co., 1 New Bond St., Worcester
Abraham Shulman & Co., 37 Coe Ave., East Haven, Conn.
R. R. Millen, 52 Pearl St., Boston
Warren M. Pike, 36 Briggs St., Melrose, Mass.
Yule Industries, Inc., 681 Southern Artery, Quincy, Mass.
Boston Machinery & Electric Co., 719 Bennington St., E Boston, Mass.
Foley's Motor Tire Service, Inc., 805 Main St., Worcester
Taft-Pierce Mfg. Co., Woonsocket, R. I.
Ideal Machinery Co., Plainville, Conn.
Lynd Farquhar Co., 31 St. James Ave., Boston

CHARLOTTE

Gastonia Mill Supply Co., 613 E Franklin Ave., Gastonia, N. C.
Miles Jennings, Elizabeth City, N. C.
Carolina Supply Co., Greenville, S. C.
Vaughan & Redmond, P. O. Box 384, Charlotte, N. C.

CHICAGO

Robert W. Widdicombe, 504 S Main St., Auburn, Ind.
E. A. Kelly Machine Tool Co., 193 S Second St., Milwaukee
A. L. White Machinery Co., 108 N Jefferson St., Chicago
Craftsman Wood Service Co., 2727 S Mary St., Chicago
Raylo Welding & Electrical Supply, 1021 N Water St., Milwaukee
Tool Engineering Co., 4737 N Broadway, Chicago
Max Zeigler & Bros., Sixth & Liberty Sts., Muncie, Ind.
Iowa Machine Works, 106 Eighth Ave., S. Clinton, Iowa
Dinnen, Glos & Associates, Inc., 100 W Monroe St., Chicago
Burton Machinery Co., 801 S Western Ave., Chicago
The Wabash Mach. & Tool Works, 592 S Wabash St., Wabash, Ind.
A. Roy Karr, 6449 N Fairfield Ave., Chicago
The Eldon Co., 1214 N Water St., Milwaukee
Quirk & Hagenbuck, 610 W Michigan, Milwaukee

NEWS OF INDUSTRY

Siegman Machinery Co., 28 N Clinton, Chicago
 Harris Machinery Co., 600 Elm Ave., S Milwaukee
 Northwestern Electric & Machinery Co., 450 N Plankinton Ave., Milwaukee
 D. I. Buchanan & Co., 2749 W Chicago Ave., Chicago
 J. E. Berkshire, 20 Lake St., Oak Park, Ill.
 Aircraft Engineering Co., 20 E Jackson Blvd., Chicago
 DoALL Wisconsin Co., 2427 W North Ave., Milwaukee
 John W. LeDuc & Associates, 1418 Times Bldg., 211 W Wacker Drive, Chicago
 Miller Machine Works, 123 Depot St., Portland, Ind.
 M. Present Co., 607 Security Trust Bldg., Indianapolis
 The Stone Co., Inc., 610 W Michigan St., Milwaukee
 Merit Machine Tools Co., 647 W Virginia St., Milwaukee
 O'Leary & Flynn, 666 Lake Shore Drive, Chicago
 Electrical Engineering & Equipment Co., 1201 Walnut St., Des Moines, Iowa
 Harry Alter & Sons, 514 S Howell St., Davenport, Iowa
 G. A. Richey & Sons, P. O. Box 1696, Indianapolis

CLEVELAND

Charles L. Hills, 1229 Hird St., Lakewood, Ohio
 The Cleveland Planer, 3148 Superior Ave., Cleveland
 G. W. Leers, 1307 St. Clair Ave., Cleveland
 John Gordon Lambert, 73 Brighton Road, Columbus, Ohio
 Louis E. Allo, 60 Climax Bldg., Cleveland
 The Cyril Bath Co., E 70th & Machinery Sts., Cleveland
 L. J. Hoy Machinery, 122 Nebraska Ave., Toledo
 Breen & Ahlers Sales Co., 927 Brookview Ave., Dayton
 George Whalley Co., 5005 Euclid Ave., Cleveland
 Lytle Engineering Co., 4500 Euclid Ave., Cleveland
 Brandes Machinery Co., 6408 Euclid Ave., Cleveland
 Somers, Fittler & Todd Co., 327 Water St., Pittsburgh
 The Wheeling Engineering & Equipment Corp., 5307 Grant Ave., Cleveland
 Rees Machinery Co., 1012 Empire Bldg., Pittsburgh
 Galbreath Machinery Co., 306 Empire Bldg., Pittsburgh
 Norwalk Chemical Co., 191 Woodlawn Ave., Norwalk, Ohio
 C. P. Lieblein, 1437 Lincoln Ave., Cleveland
 Sherrod S. MacIntosh, 3303 Superior Ave., Cleveland
 F. E. Worch Machinery Co., 2049 Westover Road, Columbus
 McLain & Sherran, 1485 Atlantic Ave., NE, Warren, Ohio

DALLAS

William C. Faubion, P. O. Box 293, Alvarado, Tex.
 Western Engineering & Sales Co., 1134 Liberty Bank Bldg., Dallas
 B. & B. Trading Co., 26 E Concho, San Angelo, Tex.
 Alden Van Kirk, 2800 Canton St., Dallas
 Bowles Machinery Co., Ltd., 3406 Main St., Dallas
 Myers & Landrum, 5306 Harry Hines Bldg., Dallas
 Hammel Machine Co., 2617 McLemore, Ft. Worth, Tex.
 Crow Machine & Equipment Co., 302 Ave. O, Lubbock, Tex.

DETROIT

DuBois-Webb Co., 2832 E Grand Blvd., Detroit
 All-American Tool & Supply Co., 2911 W Grand Blvd., Detroit
 A. W. Bachmann, 5100 Whitfield Ave., Detroit
 James W. Carter Co., 307 Blvd. Bldg., Detroit
 William H. Gibbs, 8430 LaSalle Blvd., Detroit
 William N. Patterson, 570 Maccabees Bldg., Detroit
 James E. Clogher, 1130 Parker Ave., Detroit
 Jacob L. Durling, 513 E Lincoln, Royal Oak, Mich.
 Terminal Steel & Machinery Corp., 2311 Book Bldg., Detroit
 John J. Parker, 13625 Dean, Detroit
 General Equipment Co., 4854 Cass Ave., Detroit
 Victor T. Bryant, 334 Eason Ave., Highland Park, Mich.
 Admiral Machine Co., 1281 N Oxford Road, Grosse Pointe, Mich.
 Zamboanga Distributing Co., 2316 Electric Wyandotte, Mich.
 Power Service Corp. of America, 1042 Buhl Bldg., Detroit

SAFE and SAVING

WET or dry, indoors or out, U-S-S Multigrip Floor Plate provides secure footing.

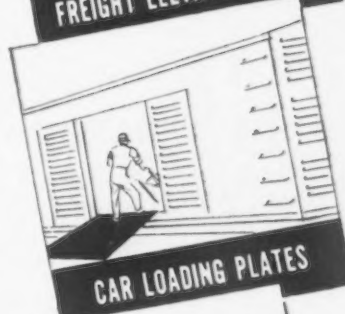
Falls, injuries, lost man-hours are caused largely by slippery or defective floors. Multigrip Floor Plate assures maximum resistance to skidding and slipping — from all angles. The flat-top risers are especially arranged to enhance the foot comfort of workers as well. The safety pattern is easily cleaned, quickly drained. There are no pockets to hold grease, rubbish or water. Vehicles roll easily on Multigrip Floor Plate.

Does the wear and tear of heavy plant traffic cause your concrete floors to chip and powder—your wood floors to rot, crack and splinter? Then protect them with Multigrip Floor Plate and note the savings in maintenance costs.

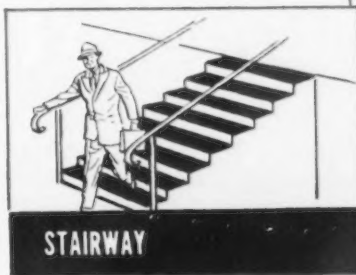
For safety, durability and economy you can't beat U-S-S Multigrip Floor Plate.



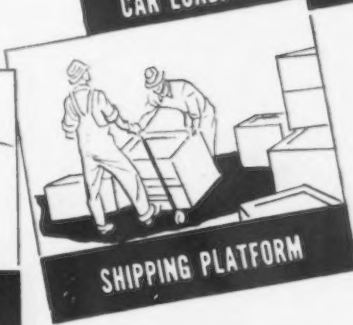
FREIGHT ELEVATOR FLOOR



CAR LOADING PLATES



STAIRWAY



SHIPPING PLATFORM



U-S-S MULTIGRIP FLOOR PLATE

CARNegie-ILLINOIS STEEL CORPORATION

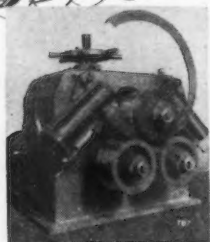
Pittsburgh and Chicago

Columbia Steel Company, San Francisco, Pacific Coast Distributors
 Tennessee Coal, Iron & Railroad Company, Birmingham, Southern Distributors
 United States Steel Export Company, New York

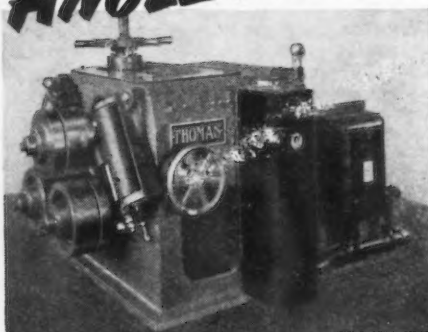
UNITED STATES STEEL



THOMAS ANGLE ROLLS



Showing adjustable auxiliary rollers to counteract twisting.



THOMAS BENDING ROLLS of the pyramid type are built in four sizes, primarily for bending angles from $\frac{3}{4}$ " x $\frac{1}{8}$ " to 6" x $\frac{1}{8}$ ". However, by utilizing special rolls, they can handle a wide variety of shapes. Their correct design, sturdy all-steel construction and convenience and ease of operation insure economical bending.

Write for Bulletin 314,
illustrating and describing
complete line.

4



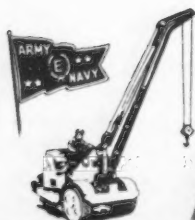
**HANDLE
THE LOAD
ONCE!**



Eliminate repeated handling by the same load!

KRANE KAR picks up, transports and positions the load. You don't waste time maneuvering the vehicle... just operate the "live" boom up and down or from side to side, by power, with the full load on the hook. Stable without jacks or outriggers; boom and load braking is automatic; safe and simple to operate. The KRANE KAR materials handling expert will be glad to help you. USERS: Basic Magnesium; General Motors; Republic; etc.

Write
for New
Catalog
#58



**THE ORIGINAL SWING BOOM MOBILE CRANE
WITH FRONT-WHEEL DRIVE AND REAR-WHEEL STEER**

2½, 5, AND 10 TON CAPACITIES

KRANE KAR

SILENT HOIST & CRANE CO., 851 63rd ST., B'KLYN 20, N.Y.

U. S. Surplus Tool Sales Co., 7336 Hartwell Ave., Dearborn
South Paw Machine Sales, 18000 St. Marys, Detroit
Saul S. Grossman, 700 Prentiss Ave., Detroit
William Newton, 412 New Center Bldg., Detroit
Kean L. Cronin, 8430 LaSalle Blvd., Detroit
Edward A. Smith, Jr., 1017 N Altadena, Royal Oak
R. B. Hassett Co., Inc., 600 Griswold St., Detroit
United Enterprises, 22700 Ford Road, Dearborn
Detroit Production Service, 403 Ford Bldg., Detroit
Efficient Engineering Co., 1040 W Ford St., Detroit
Far Machinery Co., 7878 Van Dyke Place, Detroit
Charles A. Strelinger Co., 149 E Larned St., Detroit
Industrial Equipment & Supply Co., 211 W Main St., Benton Harbor, Mich.
International Machinery Co., Prudenville, Mich.
Bailey Saw & Machinery Co., 14 Smith St., Detroit
Martin J. Moran, 1935 Woodland, Pontiac, Mich.
George G. Gallenberger, 3830 Bristow, Detroit
Champion Screw Machinery Eng. Co., 2832 E Grand Blvd., Detroit
J. A. Van Nuck, 4610 E Nevada, Detroit
H. & E. Box & Processing Co., 3220 Bellevue Ave., Detroit
Roy Smith Co., 5257 Trumbull Ave., Detroit
Wilford H. Rohlf, 512 Charlevoix Bldg., Detroit
Alco Sales & Engineering Co., 3510 Woodward Ave., Detroit
John E. Livingstone Co., 2921 E Grand Blvd., Detroit
Genparco Engineering Co., 622 Lincoln Road, Grosse Pointe, Mich.
Carl M. Merecki, 20315 Bloom, Detroit
Joseph F. Hoffman & Associates, 1796 W Grand Blvd., Detroit
Ed-Le Equipment Co., 19395 Sherwood, Detroit
Ronald D. Spicer, 11537 Hamilton Ave., Detroit
Michigan Tool Co., 7171 E McNichols Road, Detroit
Bayview Production Equipment Co., 535 E Woodbridge St., Detroit
Ashley Aircraft & Automotive Supply Co., 11761 Grand River, Detroit
Robert Lee Knowles, 405 Navahoe, Detroit
Howard E. Cregar, 325 McKinley Road, Grosse Pointe Farms, Mich.
Gerald F. DeSormier, 97 W Savannah Ave., Detroit
Progo Machinery Sales, 8770 Linwood Ave., Detroit
Phillips & Marchesani, 5015 Townsend Ave., Detroit
Hugh M. Waterston, 28 E Larned St., Detroit
W. K. Vaughan, 905 Merton Road, Detroit
H. Neil Palmer Co., 1318½ S Washington Ave., Detroit

DENVER

Borwick-Goldstein Co., 704 Equitable Bldg., Denver
Kohlhaas Tank & Equipment Co., 1624 N First St., Albuquerque, N. Mex.
Materials & Equipment Co., Empire Bldg., Denver
DoAll Mountain States Co., 2081 Broadway, Denver

HOUSTON

Oliver H. Van Horn Co., Inc., Franklin & Austin Sts., Houston
C. J. Harter Machinery, 4000 Clay St., Houston
Sam H. Penn, 408 Petroleum Bldg., Houston
Bi-Three Welding Equipment Co., Box 3047, Houston
United Metals, 4930 McKinney Ave., Houston
G. F. Cotter Supply Co., 318 Union National Bank Bldg., Houston
The H. L. Thompson Co., 2207 Second National Bank Bldg., Houston
A. Byron Smith, 3754 Sunset Blvd., Houston

JACKSONVILLE

Atlantic Machinery & Equipment Co., 211 NE 59th St., Miami, Fla.
Tampa Armature Works, Inc., 401 S Morgan St., Tampa, Fla.
M. B. Ogden, 2342 Edwards Ave., Jacksonville, Fla.
Kimmel Sales Corp., Inc., 441 Washington Ave., Miami, Fla.
Edward P. Wells, 2016 Perry St., Jacksonville, Fla.
Dave Gordon & Co., 1800 Second Ave., Tampa, Fla.
N. L. Abernathy, 2425 Pearl St., Jacksonville, Fla.

KANSAS CITY

White Stare Machinery & Supply Co., 301 N St. Francis, Wichita, Kan.

NEWS OF INDUSTRY

Fred A. Ellfeldt Co., 1648 Baltimore Ave., Kansas City
Frank P. Slater, 225 W 8th St., Kansas City
The General Machinery & Supply Co., 202 N Broadway, Pittsburg, Kan.

NASHVILLE

Industrial Machinery & Supply Co., 914 Commerce Title Bldg., Memphis
O. C. Collins Machinery Co., 358 Madison Ave., Memphis, Tenn.
Noland Co., Inc., 115 Market St., Chattanooga, Tenn.
Robbins Equipment Co., 535 Chattanooga Bank Building, Chattanooga, Tenn.
George T. McCall, 673 Shrine Bldg., Memphis, Tenn.
Riechman-Crosby Co., 223 S Front St., Memphis, Tenn.

NEW YORK

McCabe & Sheeran Machinery Corp., 712 Third Ave., New York
Long Island Equipment Co., Inc., 80 Broad St., New York
Jesse H. Rosenbaum, 145 Jamaica Ave., Jamaica, N. Y.
Liberty Products Co., 107 120th St., Queens, N. Y.
J. R. Edwards Machinery Co., 28 Edison Place, Newark, N. J.
Westchester Mfg. & Sales Corp., 415 Grasslands Rd., White Plains, N. Y.
Hefner Electric Co., Inc., 6 Lafayette Ave., Brooklyn
Earle Display Fixture Co., 229 W 36th St., New York
David Lanier, 291 Cleveland St., Orange, N. J.
Burris of Essex County, Inc., 416 Central Ave., Newark, N. J.
A & A Millwright Machinery Exchange, 1267 Flushing Ave., Brooklyn
Milton Olim, 320 Monmouth Road, Elizabeth, N. J.
Martin Kaufman, 325 Elizabeth Ave., Newark, N. J.
Kenig Electric & Machinery Co., 55 W 42nd St., New York
Aaron Katz, 2011 61st St., Brooklyn
Lanigan & Cross, Inc., 432 W Broadway, New York
Machinery Sales Co., 1265 Broadway, New York
Eugene P. Reading, Inc., Walnut St. & B. & O. RR, Roselle, N. J.
H. E. Eaton Co., 1180 Raymond Blvd., Newark, N. J.
James F. Matthews, 307 Washington St., Brooklyn
Henry Silverman, 274 Madison Ave., New York
American Machinery Co., 22 Howard St., New York
Morton Machinery Co., 45 Broadway, Brooklyn
Joseph Weisner & Co., 122 E 42nd St., New York
Herman Machine & Tool Co., 712 Third Ave., New York
The Mever & Brown Corp., 347 Madison Ave., New York
The J. G. White Engineering Corp., 80 Broad St., New York
Henri Benedictus, 55 W 42nd St., New York
Glenn D. Loucks, 170 Broadway, New York
Dreisbach Engineering Corp., 83 Warburton Ave., Yonkers, N. Y.
Edward Franklin Schill, 39 Courtlandt St., New York
Triplex Machine Tool Corp., 125 Barclay St., New York
Don F. Johnson & Co., Inc., 50 Pearl St., Buffalo
United Rubber Machinery Exchange, 319 Frelinghuysen Ave., Newark, N. J.
Breg Brothers, 216 Lafayette St., New York
Mahlon H. Gregg, 336 Berkeley St., Rochester, N. Y.
Dunn Machinery Co., 158 Grand St., New York
Morris E. Lipsett, 80 Wall St., New York
Minerva Machinery Co., 401 Broadway, New York
International Materials Co., 150 Nassau St., New York
William R. Magrill, 74 W 38th St., New York
Don Rosen, 392 Voorhees Ave., Buffalo
W. W. Wentz, 121 Powers Hotel, Rochester, N. Y.
Thomas M. Eagan, 392 Central Ave., E Orange, N. J.
Mill Supply Co., 500 Second St., Watervliet, N. Y.
Tri-Machine & Tool Co., Inc., 248 Lafayette St., New York
Dwight H. Boss, 35 Salter St., Springfield, N. J.
William V. Nickau, R. D. No. 1, Scotch Plains, N. J.
Keystone Specialty Co., Inc., 6 Maiden Lane, New York
Industrial Equipment Co., 868 Broad St., Newark, N. J.



Safe on any surface

There's one metal cleaner that just doesn't fall down on the job. That's Wyandotte Metal Cleaner No. 38.

This *balanced* product can solve practically all the cleaning needs of the average plant with economy and efficiency.

Wyandotte Metal Cleaner No. 38 is all-soluble. It dissolves quickly, rinses easily and completely. It is designed to correct water conditions . . . wet rapidly . . . give long life in solution. It is inhibited to prevent corrosion of the metal being treated.

Wyandotte Metal Cleaner No. 38 is being used successfully for electro-cleaning of ferrous metals, as well as copper and brass.


It is a proven reverse current cleaner for zinc-base die-castings. It is giving satisfaction when used in electro-cleaning baths on hand-operated, semi- and full-automatic line . . . in still-cleaning solutions . . . in tumble barrel equipment . . . in pressure spray and rotary type metal parts washing machines.

Let your Wyandotte Representative tell you more about the advantages of Wyandotte Metal Cleaner No. 38. He's always at your service.



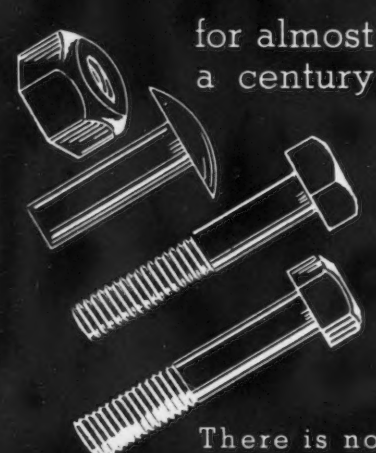
Wyandotte
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WYANDOTTE CHEMICALS CORPORATION • J. B. FORD DIVISION
WYANDOTTE, MICHIGAN • SERVICE REPRESENTATIVES IN 88 CITIES



CLARK
Fasteners

have been used
in most lines
of production
for almost
a century



There is no
better proof of
their high qual-
ity than this. Pos-
sibly you too
could profit by
their use.

CLARK BROS BOLT CO.
MILLDALE, CONN.

SINCE **1854**

184—THE IRON AGE, April 4, 1946

NEWS OF INDUSTRY

OMAHA

The Laramie Automotive Parts Co., 406 S Second St., Laramie, Wyo.

PHILADELPHIA

Herman D. Jaffe, 119 N Third St., Philadelphia
B. M. Weiss Co., 1601 Girard Trust Co. Bldg., Philadelphia
G. G. Wyatt Machinery Co., 1203 Princess Ave., Camden, N. J.
Arcway Equipment Co., 3717-29th Filbert St., Philadelphia
J. H. Wood, 1033 D Broad St., Suburban Sta. Bldg., Philadelphia
Herman L. Winterer, 953 N Front St., Philadelphia
Ensminger & Co., 57 Wood St., Wilkes-Barre, Pa.
Max K. York, P. O. Box 25, Eagleville, Pa.
Morgan Tool & Equipment Co., 18 W Cheltenham Ave., Philadelphia
General Tool Sales Co., 3945 N Broad St., Philadelphia
Lester R. Gorman, 222 W Eighth St., Wilmington, Del.
Stewart S. Kichline, 2042 Hanover Ave., Allentown, Pa.
M. J. Hunt's Sons, 1604 N Delaware Ave., Philadelphia
J. H. Sternbergh, Jr., 957 Centre Ave., Reading, Pa.
DoAll Philadelphia Co., 3107 N Broad St., Philadelphia
Wm. H. Taylor & Co., Inc., 256 Hamilton St., Allentown, Pa.
Eagle Machinery Sales Co., 1732 Fairmount Ave., Philadelphia
William P. Swift, Inc., 1248 Commercial Trust Bldg., Philadelphia
Cattie Tool Co., 100 N Third St., Philadelphia
Austin G. Yockey, 709 Bellevue Court Bldg., Philadelphia
Barrettini Electric Co., 378 N Main St., Plains, Pa.
T. B. MacCabe Co., 4300 Clarissa St., Philadelphia
Earl G. Oppenheim, 2100 Walnut St., Philadelphia

RICHMOND

The DoAll Baltimore Co., 138 W Mount Royal Ave., Baltimore
Eugene B. Skarie, 707 N Howard St., Baltimore
Refco Co., 1619 Montague St., NW, Washington, DC
American Marketing Co., 2500 Q St., NW, Washington, DC
Standard Machine & Supply Co., 137 E Olney Road, Norfolk, Va.
American Machinery & Supply Co., 2743 McKinley St., NW, Washington, DC
Kemp Machinery Co., 211 President St., Baltimore
Southern Machinery & Supply Co., P. O. Box 1910, Roanoke, Va.
R. G. Brugh Machinery Co., 2712 Colley Ave., Norfolk, Va.
M. J. Byrns, 502 Carry Bldg., Washington, DC
Federal Sales Co., 1 Scott Circle, Washington, DC
Stephenson, Fitzgerald & Dunlap, Inc., 1703 K St., NW, Washington, DC
Randall Construction Supply Co., 655 Earle Bldg., Washington, DC
Parkersburg Machine Co., Parkersburg, W Va.
The Crosbie Co., 2039 K St., NW, Washington, DC
Best Machinery Co., 814 Ridgely St., Baltimore
Equipment & Supplies, Inc., 1444 Wicomico St., Baltimore
James A. Slacum, 109 Academy St., Cambridge, Md.

SAN ANTONIO

G. C. Wilson, 1510 Majestic Bldg., San Antonio, Tex.

SAN FRANCISCO

Miller & Bixby, 2037 Baker St., San Francisco
Russell M. Gilwee, 320 Market St., San Francisco
Slaten Machinery Co., 1011 Cypress St., Oakland, Calif.
Osborne Machinery Co., 398 Fifth St., San Francisco
DoAll San Francisco Co., 651 Folsom St., San Francisco
Clinch Mercantile Co., Box 1114, Grass Valley, Calif.
Ace Mfg. & Supply Co., 2 Hillside Blvd., Daly City, Calif.
Daniel R. Buckley & Sons, 449 10th St., San Francisco
George M. Philpott Co., 1160 Bryant St., San Francisco

SPOKANE

Jack Reding, 118 S Division, Spokane, Wash.
Inland Machinery Co., E 215 Sprague Ave., Spokane, Wash.

Crush-Formed Wheel Grinding

Effectively
Done With

OAKITE
SOLUBLE OIL
COOLANTS

Crush-formed wheel grinding is being employed for an ever-growing number of important applications. If you, too, are using this new machining technique, you know that a first requirement is a coolant having maximum cooling, lubricating and rust-preventing properties.

To meet these needs successfully, many shops report they cannot do better than employ Oakite Soluble Oil in the recommended dilution. This more effective coolant keeps wheels clean and free-cutting. It assures precision work and a smoother, better finish. It has high resistance to rancidity, is economical to use, and has long life. The Oakite solution stays clean longer, which in turn helps keep tanks and supply lines freer. Dressing of wheels is required less frequently.

DETAILS FREE

Let us send you full information about Oakite Soluble Oil. Or, our Technical Service Representative will gladly give you an on-the-spot demonstration.

OAKITE PRODUCTS, INC.

28A Thames Street, New York 6, N. Y.

Technical Service Representatives Located in All Principal Cities of the United States and Canada

OAKITE *Specialized*
CLEANING

MATERIALS • METHODS • SERVICE

WAA Names Additional Machine Tool Dealers For Surplus Disposal

Washington

• • • An additional 143 approved dealers licensed to solicit and negotiate sales of surplus machine tools and production equipment were authorized under the agency-dealer plan from Feb. 15 through Feb. 28.

This brings approved dealers signed under the program to a total of 1047 as of Feb. 28.

As of that date, another 226 dealer appointments were reported as having been made by the 31 War Assets Administration regional offices, but these approvals, pending signature and acceptance of contracts, have not as yet been forwarded to WAA headquarters. In addition, some 334 applications were in process by field offices.

Names and locations of dealers approved from Feb. 15 through Feb. 28 whose acceptances have been reported to the Washington office as of the end of February follow:

ATLANTA

Southern Property Co., 2101 Vineville Ave.,
Macon, Ga.
Battery Machinery Co., Inc., Rome, Ga.

BIRMINGHAM

Birmingham Electric & Mfg. Co., Inc., 109 N
11th St., Birmingham
Automatic Machine Products Co., 608 Gray-
mont Ave., N Birmingham

CHARLOTTE

McRary & Son, Inc., 198 Clingman Ave.,
Asheville, N. C.
Joseph Maines, Box 856, Gastonia, N. C.
Sullivan Hardware Co., 208 S Main St.,
Anderson, S. C.
Hall & Co., Inc., 189 E Charles St., Sparten-
burg, N. C.
Odell Mill Supply Co., 300 N Forbis St.,
Greensboro, N. C.
Stewart Machinery Sales Co., 236 W Airline
Ave., Gastonia, N. C.
Columbia Supply Co., 823 Gervais St., Colum-
bia, S. C.

CHICAGO

F & S Tool Engineering Co., 549 W Wash-
ington Blvd., Chicago
Tri-State Machine Tool Co., 13 S Clinton St.,
Chicago
H. Y. Smith Co., 828 N. Broadway, Milwaukee
Mandel-Camras Machinery Co., 809 W Lake
St., Chicago
Factory Supplies Co., 1417 Broadway, Rock-
ford
Industrial Machinery Co., 810 W. National
Ave., Milwaukee
Hirsch Machinery & Equipment Sales, 1613
W Hopkins St., Milwaukee
Globe Machinery & Supply Co., E First &
Court Ave., Des Moines, Iowa
Turchan Follower Machine Co., 5242 W Oak-
dale, Chicago
R. E. Stovall & Associates, 432 Bankers
Trust Bldg., Indianapolis
General Sales & Supply Co., R.F.D. No. 3,
Madison, Wis.
Platers Supply Co., 849 Mass. Ave., Indian-
apolis
Metwood Machinery Co., 704 Seventh St.,
Rockford, Ill.



**HEAVY CRANE
HELPER**

*this hoist saves time
and cost on
LIGHTER LIFTS*

A EUCLID HOIST mounted on the trolley of a traveling crane saves time and lowers costs through faster, more economical handling of the lighter loads while the large crane hoist stands by for heavy duty.

Such installations often meet changed handling needs satisfactorily and inexpensively.

This is but one of the many practical ways in which industry uses Euclid Hoists in the rapid, inexpensive movement of material.

Euclid Hoists are available in types and capacities from 1000 to 30,000 pounds—with plain or powered trolleys and with pendant, push button or cab control.

Our representative will be glad to discuss your material handling problems. Write for hoist and crane catalogs.

THE EUCLID CRANE & HOIST COMPANY

1361 CHARDON RD.
EUCLID, OHIO



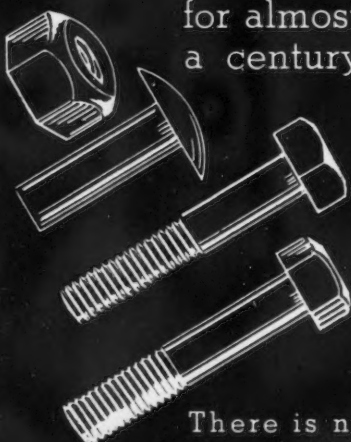
**CRANES and
EUCLID
HOISTS**

Raise Profits

CLARK Fasteners

have been used
in most lines
of production

for almost
a century



There is no
better proof of
their high qual-
ity than this. Pos-
sibly you too
could profit by
their use.

CLARK BROS BOLT CO.
MILDDALE, CONN.

SINCE **1854**

NEWS OF INDUSTRY

OMAHA

The Laramie Automotive Parts Co., 406 S Second St., Laramie, Wyo.

PHILADELPHIA

Herman D. Jaffe, 119 N Third St., Philadelphia

B. M. Weiss Co., 1601 Girard Trust Co. Bldg., Philadelphia

G. G. Wyatt Machinery Co., 1203 Princess Ave., Camden, N. J.

Areway Equipment Co., 3717-29th Filbert St., Philadelphia

J. H. Wood, 1033 D Broad St., Suburban Sta. Bldg., Philadelphia

Herman L. Winterer, 953 N Front St., Philadelphia

Ensminger & Co., 57 Wood St., Wilkes-Barre, Pa.

Max K. York, P. O. Box 25, Eagleville, Pa.

Morgan Tool & Equipment Co., 18 W Cheltenham Ave., Philadelphia

General Tool Sales Co., 3945 N Broad St., Philadelphia

Lester R. Gorman, 222 W Eighth St., Wilmington, Del.

Stewart S. Kichline, 2042 Hanover Ave., Allentown, Pa.

M. J. Hunt's Sons, 1604 N Delaware Ave., Philadelphia

J. H. Sternbergh, Jr., 957 Centre Ave., Reading, Pa.

DoAll Philadelphia Co., 3107 N Broad St., Philadelphia

Wm. H. Taylor & Co., Inc., 256 Hamilton St., Allentown, Pa.

Eagle Machinery Sales Co., 1732 Fairmount Ave., Philadelphia

William P. Swift, Inc., 1248 Commercial Trust Bldg., Philadelphia

Cattie Tool Co., 100 N Third St., Philadelphia

Austin G. Yockey, 709 Bellevue Court Bldg., Philadelphia

Barrettini Electric Co., 378 N Main St., Plains, Pa.

T. B. MacCabe Co., 4300 Clarissa St., Philadelphia

Earl G. Oppenheim, 2100 Walnut St., Philadelphia

RICHMOND

The DoAll Baltimore Co., 138 W Mount Royal Ave., Baltimore

Eugene B. Skarie, 707 N Howard St., Baltimore

Refco Co., 1619 Montague St., NW, Washington, DC

American Marketing Co., 2500 Q St., NW, Washington, DC

Standard Machine & Supply Co., 137 E Olney Road, Norfolk, Va.

American Machinery & Supply Co., 2743 McKinley St., NW, Washington, DC

Kemp Machinery Co., 211 President St., Baltimore

Southern Machinery & Supply Co., P. O. Box 1910, Roanoke, Va.

R. G. Brugh Machinery Co., 2712 Colley Ave., Norfolk, Va.

M. J. Byrns, 502 Carry Bldg., Washington, DC

Federal Sales Co., 1 Scott Circle, Washington, DC

Stephenson, Fitzgerald & Dunlap, Inc., 1703 K St., NW, Washington, DC

Randall Construction Supply Co., 655 Earle Bldg., Washington, DC

Parkersburg Machine Co., Parkersburg, W Va.

The Crosbie Co., 2039 K St., NW, Washington, DC

Best Machinery Co., 814 Ridgely St., Baltimore

Equipment & Supplies, Inc., 1444 Wicomico St., Baltimore

James A. Slacum, 109 Academy St., Cambridge, Md.

SAN ANTONIO

G. C. Wilson, 1510 Majestic Bldg., San Antonio, Tex.

SAN FRANCISCO

Miller & Bixby, 2037 Baker St., San Francisco

Russell M. Gilwee, 320 Market St., San Francisco

Slaten Machinery Co., 1011 Cypress St., Oakland, Calif.

Osborne Machinery Co., 398 Fifth St., San Francisco

DoAll San Francisco Co., 651 Folsom St., San Francisco

Clinch Mercantile Co., Box 1114, Grass Valley, Calif.

Ace Mfg. & Supply Co., 2 Hillside Blvd., Daly City, Calif.

Daniel R. Buckley & Sons, 449 10th St., San Francisco

George M. Philpott Co., 1160 Bryant St., San Francisco

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Jack Reding, 118 S Division, Spokane, Wash.

Inland Machinery Co., E 215 Sprague Ave., Spokane, Wash.

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MATERIALS • METHODS • SERVICE

WAA Names Additional Machine Tool Dealers For Surplus Disposal

Washington

• • • An additional 143 approved dealers licensed to solicit and negotiate sales of surplus machine tools and production equipment were authorized under the agency-dealer plan from Feb. 15 through Feb. 28.

This brings approved dealers signed under the program to a total of 1047 as of Feb. 28.

As of that date, another 226 dealer appointments were reported as having been made by the 31 War Assets Administration regional offices, but these approvals, pending signature and acceptance of contracts, have not as yet been forwarded to WAA headquarters. In addition, some 334 applications were in process by field offices.

Names and locations of dealers approved from Feb. 15 through Feb. 28 whose acceptances have been reported to the Washington office as of the end of February follow:

ATLANTA

Southern Property Co., 2101 Vineville Ave.,
Macon, Ga.
Battery Machinery Co., Inc., Rome, Ga.

BIRMINGHAM

Birmingham Electric & Mfr. Co., Inc., 109 N
11th St., Birmingham
Automatic Machine Products Co., 608 Gray-
mont Ave., N Birmingham

CHARLOTTE

McRary & Son, Inc., 198 Clingman Ave.,
Asheville, N. C.
Joseph Maines, Box 856, Gastonia, N. C.
Sullivan Hardware Co., 208 S Main St.,
Anderson, S. C.
Hall & Co., Inc., 189 E Charles St., Sparten-
burg, N. C.
Odell Mill Supply Co., 300 N Forbis St.,
Greensboro, N. C.
Stewart Machinery Sales Co., 236 W Airline
Ave., Gastonia, N. C.
Columbia Supply Co., 823 Gervais St., Colum-
bia, S. C.

CHICAGO

F & S Tool Engineering Co., 549 W Wash-
ington Blvd., Chicago
Tri-State Machine Tool Co., 13 S Clinton St.,
Chicago
H. Y. Smith Co., 828 N. Broadway, Milwaukee
Mandel-Camras Machinery Co., 809 W Lake
St., Chicago
Factory Supplies Co., 1417 Broadway, Rock-
ford
Industrial Machinery Co., 810 W. National
Ave., Milwaukee
Hirsch Machinery & Equipment Sales, 1613
W Hopkins St., Milwaukee
Globe Machinery & Supply Co., E First &
Court Ave., Des Moines, Iowa
Turchan Follower Machine Co., 5242 W Oak-
dale, Chicago
R. E. Stovall & Associates, 432 Bankers
Trust Bldg., Indianapolis
General Sales & Supply Co., R.F.D. No. 3,
Madison, Wis.
Platers Supply Co., 849 Mass. Ave., Indian-
apolis
Metwood Machinery Co., 704 Seventh St.,
Rockford, Ill.



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LIGHTER LIFTS*

A EUCLID HOIST mounted on the trolley of a traveling crane saves time and lowers costs through faster, more economical handling of the lighter loads while the large crane hoist stands by for heavy duty.

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This is but one of the many practical ways in which industry uses Euclid Hoists in the rapid, inexpensive movement of material.

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Charles M. Williamson & Associates, 111 W Washington, Chicago
E. H. Modin & Co., 8411 S Oglesby Ave., Chicago

CLEVELAND

The Elyria Belting & Mch. Co., Williams & Buckeye Sts., Elyria, Ohio
Klatt & Wood Co., 329-20th St., Toledo
Congleton Co., 307 E Fourth St., Cincinnati
Irving M. Saunders, 1849 Farmington Road, E Cleveland
Ray C. Gallaher, 743 Third National Bldg., Dayton
Taylor H. Beech, 427 S Trenton Ave., Pittsburgh
Edward Testo, 5419 Biddulph Ave., Cleveland

DETROIT

G. K. McMullen Co., 200 Division Ave., NE Grand Rapids, Mich.
Progressive Welder Co., 3050 E Outer Drive, Detroit
Lennon Associates, 18245 Livernois Ave., Detroit
W. F. Lockwood & Associates, Lafayette Bldg., Detroit
Brant & Cochran, 112 Madison Ave., Detroit
Riorden Machinery Co., 2842 W Grand Blvd., Detroit
Paul F. Carpenter, 2200 Olds Tower, Lansing, Mich.
State Machinery Co., 2909 E Woodbridge St., Detroit
Joseph Arnsteen, 529 E Jefferson Ave., Detroit
U. S. Industrial Tool Supply Co., 10226 Woodward Ave., Detroit
John Allwood Co., 3200 Coit Road, NE, Grand Rapids, Mich.
L. A. Armentrout, 863 Penobscot Bldg., Detroit
The Rickenbacker Co., 1434 Dime Bldg., Detroit

Denton & Anderson Co., 2857 E Grand Blvd., Detroit
Lee Machinery Co., Inc., 6318 E Jefferson, Detroit
The Curley Sales & Engineering Co., 200 Ionia Ave., NW, Grand Rapids, Mich.
The Joe Martin Co., 6432 Cass Ave., Detroit
Wickes Bros., 515 N Washington Ave., Saginaw, Mich.
Spiegel Sales Co., 7310 Woodward Ave., Detroit
Paul V. Huston, 608 Ford Bldg., Detroit
Chris Brinke & Co., 6432 Cass Ave., Detroit
Baier & Son, 19211 Harper, Detroit
Tompkins Printing Equipment Co., 1040 W Grand Blvd., Detroit
J. A. Kozma, 8203 Prest Ave., Detroit
Richard F. Lang, 7920 Mack Ave., Detroit
Detroit Machinery Exchange, 11401 Nardin, Detroit
R. O. Sheldon & Co., 1200 United Artists Bldg., Detroit
Mercury Engineering Co., 2631 Woodward Ave., Detroit
George Wolf, 7663 Epworth Blvd., Detroit
Cochrane Sales & Engineering Co., 665 Merri-
rick Ave., Detroit
Weaver & Mentell, 658 E Chesterfield, Ferndale, Mich.
Bert B. Webb, 8639 Beechdale, Detroit
National Electric Welding Machines Co., 1846 W Trumbull St., Bay City, Mich.

JACKSONVILLE

Surplus Goods Co.—Army-Navy Goods Store, 332 E Forsyth St., Jacksonville, Fla.
Frank P. Stockton, Eau Gallie, Fla.
Llewellyn Machinery Corp., 1030 N Miami Ave., Miami, Fla.

KANSAS CITY

C. Powell & Son, 518 Dwight Bldg., Kansas City
Material Distributors, Inc., 701 E Central Ave., Wichita, Kan.
The H. W. Cardwell Co., Inc., 801 S Wichita St., Wichita, Kan.

Welders Supply & Repair Co., 512 E 19th St., Kansas City

MINNEAPOLIS

The George T. Ryan Co., 3000 University Ave., SE, Minneapolis
Anderson Machine Tool Co., 2645 University Ave., St. Paul
B. W. & Lee Harris Co., 2429 University Ave., SE, Minneapolis
Industrial Machinery & Equipment Co., 714 N Washington, Minneapolis
W. P. & R. S. Mars Co., 324 W Michigan St., Duluth
Forcey Machine Tool Sales, 103 Lake Ave., White Bear Lake, Minn.
Dale Pulver Equipment Co., 3326 University Ave., SE, Minneapolis
H. L. Prather, 2727 Portland Ave., Minneapolis
Great Lakes Auto Parts & Machine Works, Inc., 302 E Superior St., Duluth
Hein Implement Co., 423 W Fourth St., Grand Rapids, Minn.
Industrial Supply Co., 1100 Third Ave., S, Minneapolis
C. H. Stocking Electrical & Machinery Sales & Service, Hutchinson, Minn.
Ken S. Gold Co., 2432 University Ave., St. Paul
Alcan Service, 4146 Washington Ave., N, Minneapolis
Walter R. Hammond Co., 255 Third Ave., S, Minneapolis
MacAskill-Monaghan Co., 227 Lake Ave., S, Duluth

NASHVILLE

Corinth Machinery Co., Corinth, Miss.
Mills & Lupton Supply Co., 1152 Market St., Chattanooga, Tenn.
Chattanooga Armature Works, 1215 Duncan Ave., Chattanooga, Tenn.

NEW ORLEANS

Dixie Mill Supply Co. of Shreveport, 200 Edwards St., Shreveport, La.

NEW YORK

Coates & Dauer, 10 Bridge St., Room 123, New York
Johns-Manville International Corp., 22 E 40th St., New York
Contract Mfg. & Engineering Co., 15 Bridge Plaza N, Long Island City, N. Y.
Machinery Expeditors, 170 Broadway, New York
Centre Machinery Co., 249 Centre St., New York
Madsen & Howell, Inc., 313 Madison Ave., Perth Amboy, N. J.
Inwood Industries, Inc., 43 Cedar St., New York
Kaller Machinery Co., Inc., 320 Broadway, New York
Wehrheim Machinery Co., 77 Ogden St., Newark, N. J.
Henry Products Co., Inc., 754 Lexington Ave., Brooklyn
William Pins, 10 Manhattan Ave., New York
John Rizzo, 91-39 85th Ave., Woodhaven, L. I., N. Y.
J. C. Berkweit & Co., 551 Fifth Ave., New York
Starter Batteries, Inc., 1665 63rd St., Brooklyn

OKLAHOMA CITY

Mideke Supply Co., 100 E Main St., Oklahoma City, Okla.
Industrial Equipment Co., 318 W First St., Tulsa, Okla.
Fife Supply Co., 400 S First St., Seminole, Okla.

PORTLAND

Pioneer Electric Appliance Co., 320 E Second St., The Dalles, Ore.
Umpqua Industrial Machinery & Supply Co., 304 Pacific Bldg., Roseburg, Ore.
Harris Ice Machine Works, Inc., 61 South-east Yamhill St., Portland, Ore.
Pendleton Auto Parts, Inc., E Court & Third, Pendleton, Ore.
Zindell Machinery & Supply Co., 1003 S W Front Ave., Portland, Ore.
Dale Prow, Grants Pass, Ore.

RICHMOND

Tidewater Supply Co., Inc., 36 Commercial Place, Norfolk, Va.
Nesbitt Machinery Co., 1027 O'Sullivan Bldg., Baltimore

ST. LOUIS

Ken Standard Corp., 1401 N Fares Ave., Evansville, Ind.



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 W. H. Scheer, 7430 Bruno Ave., St. Louis
 Hoffman Marquard Iron & Machine Co., 1525 N Broadway, St. Louis
 J. C. Bremer, Hillsboro, Ill.
 Charles S. Beck, 5128 Palm, St. Louis
 B. C. MacDonald & Co., Arcade Bldg., St. Louis
 Mch. & Welder Corp., 700 Spring St., St. Louis
 Guy H. Rumpf Machinery & Equipment Co., 2017 Railway Exchange Bldg., St. Louis
 Lefton Industrial Corp., 212 Victor St., St. Louis

SALT LAKE CITY

J. J. Coan Co., Inc., 334 W South Temple, Salt Lake City
 The Gallagher Co., 48 South Second East, Salt Lake City

SAN ANTONIO

The Kelco Corp., 718 Milam Bldg., San Antonio, Tex.
 H. W. Lewis Equipment Co., 431 Hoefgen Ave., San Antonio, Tex.
 Alamo Iron Works, San Antonio, Tex.
 Patten Machinery Co., 1318 N Alamo St., San Antonio, Tex.
 H. H. Coffield, Box 466, Rockdale, Tex.
 San Antonio Machine & Supply Co., Harlingen, Tex.
 Phalanx Corp., 753 Bryant St., San Francisco, Calif.
 Howard Drullard, 1026 Folsom St., San Francisco
 Industrial Equipment Co., 155 Sansome St., San Francisco
 Sutton-Morf Tractor Co., 1615 Capital Ave., Sacramento, Calif.
 Moore Equipment Co., 1250 S Wilson Way, Stockton, Calif.

SEATTLE

Washington Iron Works, 1500 Sixth Ave., S, Seattle

Bearing Company Finds 1945 Third Best Year

Cleveland

• • • Cleveland Graphite Bronze Co. has reported net profit of \$1,304,391 for 1945, third largest volume of business in the company's history. Sales totaled \$43,594,868.

In his annual report to stockholders, Ben F. Hopkins, company president, said Cleveland Graphite Bronze is now carrying on bearing research more vigorously than ever.

"In our war effort, we had to find alternatives for strategic metals which were in short supply and had also to develop new processes for using the alternatives," he stated.

"It was also necessary to develop new types of bearings capable of withstanding constantly increasing loads, and that also involved the development of new processes."

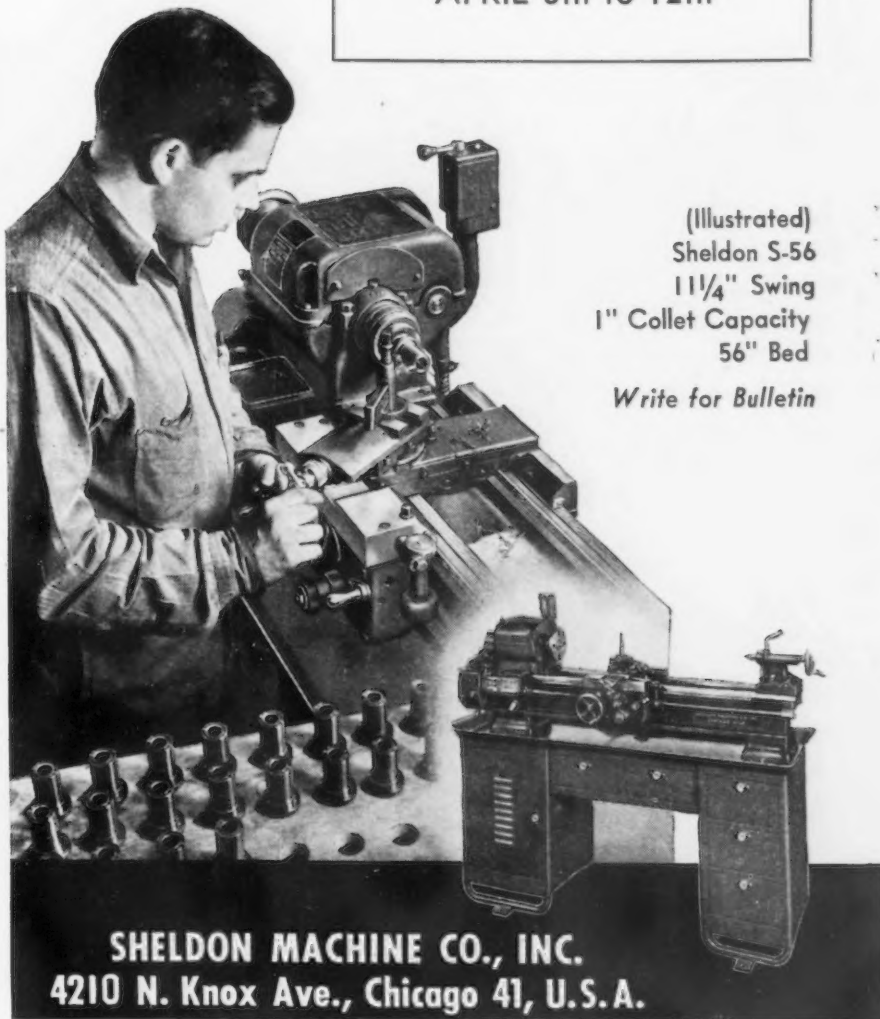
Sales for the first quarter of 1946 are expected to be approximately \$5,500,000, Mr. Hopkins reported, adding that the outlook for the rest of the year is complicated by the general labor situation and the effects of the new price-wage policy.

SHELDON PRECISION LATHES

from any angle, better lathes for turning small parts with precision, speed and profit.

Modern, lighter, faster, handier equipment. Rigidly built to hold its close accuracy under round-the-clock operation. Surprisingly inexpensive.

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 Sheldon S-56
 11 1/4" Swing
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 Write for Bulletin

SHELDON MACHINE CO., INC.
 4210 N. Knox Ave., Chicago 41, U.S.A.

Fast Tough



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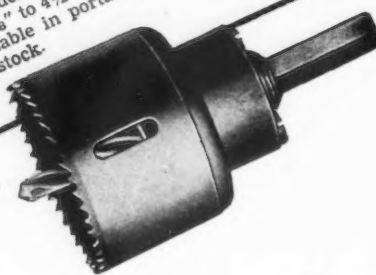
Being the largest exclusive manufacturer of metal sawing machines and blades, both hack saw and band saw type, we have the correct answer to your cut-off problems. Each MARVEL model has a distinct application, so write us and we will send our catalog, price, and recommendation for the saw to fill your requirements most efficiently. MARVEL sawing engineers are also available to discuss and analyze your cut-off work. (Without obligation of course.)

ARMSTRONG-BLUM MFG. CO.
5700 Bloomingdale Ave., Chicago 39, Illinois, U.S.A.

Heavy feed at high speed spells doom to the ordinary hack saw blade; down-time for your machine, extra expense in money, man hours, and production. The MARVEL Hack Saw Blade, because it is positively unbreakable under these conditions, should be "a must" tool in every efficiently operated shop. A tough alloy steel back is electrically welded to high speed steel teeth, producing a blade that can be pulled to almost unlimited tension; can withstand extra heavy feeds and the heat and abrasion of high speed heavy duty sawing.

The same exclusive unbreakable feature of MARVEL Hack Saw Blades is also a feature of MARVEL Hole Saws, giving these saws the ability to stand up under abuse. MARVEL Hole Saws cut holes from $\frac{3}{8}$ " to $4\frac{1}{2}$ " diameter in stock up to $1\frac{1}{2}$ " thick. Usable in portable drill, drill press, or lathe tail stock.

*Heavy feed
at
high speed!*



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NEWS OF INDUSTRY

British Housing Drive Gets Under Way Despite Shortages in Material

London

•••The British Government's first statistical returns on the progress of its housing campaign show that at the end of January 3469 permanent and 12,751 temporary houses had been constructed in England, Scotland and Wales. These figures may appear small, but as the London Times points out, they are not unsatisfactory when one considers the difficulties of the preceding six months, particularly as regards manpower.

At the end of last July, 348,000 building operatives and 7000 German prisoners of war, engaged in preparing sites, were employed on housing work throughout Britain. Six months later 435,000 men and 24,000 prisoners were working, of whom 42,000 were preparing sites and 71,000 were producing new houses; 198,000 were repairing war damage; 80,000 doing other repairs, and 68,000 converting and adapting existing houses for occupation.

Lack of materials is also holding up the production of new homes. Plaster board is scarce for permanent houses, as it is being used for temporary dwellings. Bricks are not yet plentiful enough for the vast program contemplated. There are too few iron gutters, and kitchen ranges and other fittings are short. Nevertheless, local authorities have been given approval for bids for 45,294 permanent houses in England and Wales. An additional 5869 destroyed houses have had their sites cleared and are ready for rebuilding, making a total of 51,163 permanent dwellings under contract. In Scotland, 14,853 bids have been approved. Aneurin Bevan, Minister of Health, is giving the private builder a bigger role than was at first contemplated in Britain's housing program. Local authorities can engage private contractors to build houses for them, instead of having the work done on a bid basis. Up to the end of January, 28,711 licences were issued to private builders in England, Scotland and Wales for the construction of permanent houses.

In order to speed up its housing drive, the British Government has

introduced a master plan for intensive production. It has three main points: (1) The Ministry of Supply, dealing with industry direct, is placing bulk blanket orders for huge quantities of home fittings; (2) standard designs will be mass-produced, varieties of fittings being reduced to the minimum; and (3) bottlenecks in certain industries, caused by war paralysis, will be eliminated.

In charge of the plan is A. A. Saunders, Director-General of Housing Supplies of the Ministry of Supply. He has the power to take off all brakes on production, and he and his staff will deal directly with manufacturers in groups of industries. The blanket covers all firms capable of tackling the job. Everything produced under blanket orders will be paid for through the normal channels on delivery.

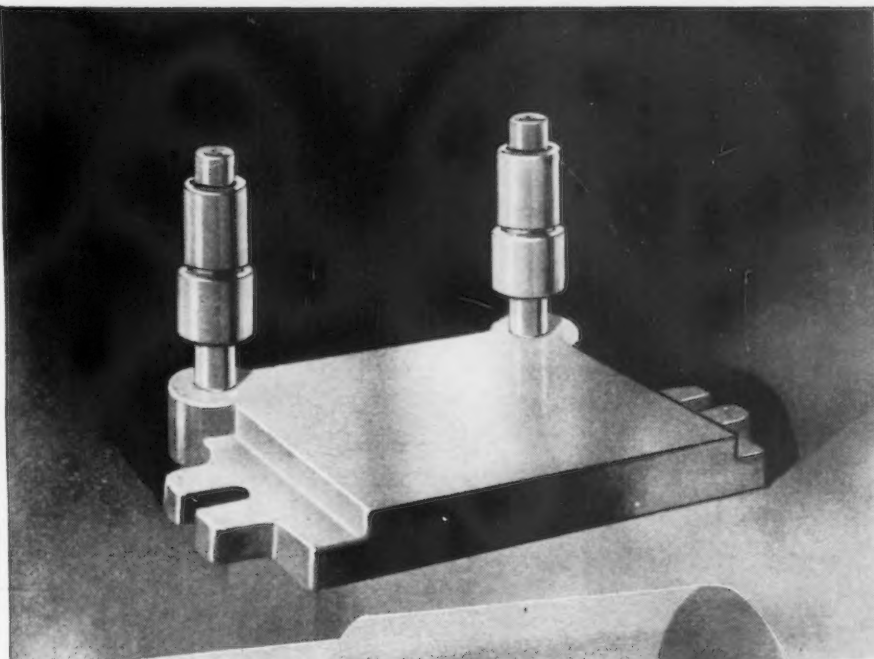
Before the war, British industries produced components for 300,000 homes a year. With new acceleration methods, this figure can be far exceeded. Production of these components will probably forge ahead of the house-building program, but when the houses are available, the fittings will be there.

The current bottlenecks include iron foundry work which has lapsed in war, and the continuing timber shortage. Iron castings do not make weapons, but are still needed for drainpipes and cisterns. Standardization is likely to speed up this job and, if necessary, the government will direct labor to this industry.

As the timber shortage is likely to last, steel is all-important. British steel supplies are good, however; war scrap is flowing into industry in ever increasing volume, and standardized steel fittings, and steel baths can be mass-produced.

The government is insisting on a high standard in all products, but mass orders should keep prices down and eventually reduce the cost of houses.

Under the blanket plan, electric and gas fittings are being standardized; pressed steel gas cookers are in mass production; back-to-back stoves, now a standard fitting in temporary houses are to be mass-produced and used, it is hoped, in permanent homes; package kitchen units have been ordered in bulk and temporary houses will have steel kitchen bathroom units. One firm,



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give you all the unique advantages found only in aluminum bronze:

GUIDE-POST Bushings of Ampco Metal keep blanking, forming, and other die sets in alignment, regardless of abuse and hard usage.

Made centrifugally of Grade 18 Ampco Metal and machined to close tolerances, these bushings can be fitted closely . . . do not seize or gall . . . do not "squash out" . . . do not rust . . . outlast steel or ordinary bronze bushings.

Ampco guide-post bushings assure accuracy over long periods, without the necessity of frequent reconditioning or replacement of pins and bushings.

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Airless or centrifugal operating machines require Heat-Treated Shot or Heat-Treated Steel Grit.

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Our Shot and Grit were made expressly for use in airless machines.

It simply means—

More cleaning at much less cost.

More cleaning and less dust at less cost.

And, remember—any old size won't do.

There is a correct size of Shot and Grit to obtain maximum results.

If cleaning grey iron, malleable iron, or steel drop forgings, we can save you money.

Let us prove it!

HARRISON ABRASIVE CORPORATION

Manchester, New Hampshire

on war production 12 months ago, is now turning out 1200 steel baths a week.

In a determined effort to speed up the delivery of temporary houses, the Ministry of Works, the third Ministry concerned in the housing drive, has set up 16 factories where, for the first time, prefabricated homes can be made completely. Five of these will produce exclusively for the London area. In addition, 512 contracting firms will continue to turn out component parts.

Veteran Priority For Building Materials

Ottawa

••• A new priority order has been put in effect in Canada to channel certain building materials still in critical short supply into government approved low cost housing projects for war veterans, Reconstruction Minister Howe announced. Suppliers of building materials to government approved low cost projects covered by the order, known as Priorities Officers' Order No. 11, are required to make prior shipment to construction jobs on orders bearing the new priorities rating, taking into consideration the required delivery date on such rated purchase orders.

The new order applies to practically all types of building materials, including conduit and fittings, electrical wires and cables, wiring supplies and devices of all kinds, furnaces, heaters, nails, plumbing fixtures and fittings, range boilers, steel pipe and fittings, steel sheets both black and galvanized.

Company Elects Officers

Detroit

••• The Gerity-Michigan Die Casting Co., resulting from the merger of Michigan Die Casting Co., Detroit, and Gerity-Adrian Manufacturing Corp., Adrian, Mich., has elected the following officers:

Chairman, James Gerity, Jr.; president, Louis W. Blauman; vice-presidents, E. Martin Tallberg, William N. Schnell, and Charles Shanks; secretary, James T. Bolan and treasurer, M. K. Layer.

HANNA TEN IRON INGOT

THE BEST
KNOWN NAME
IN IRON



10 POUNDS

10 POUNDS . . . for easier handling, more accurate control of the charge, finer grain structure of the iron. That's the story of the new HannaTen ingot, available in all grades of Hanna iron. Take advantage of this important development in "better iron for better castings" . . . from Hanna.

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FERRO-SILICON

BRANDS:
SUSQUEHANNA
BUFFALO
DETROIT

The Hanna Furnace Corporation

Merchant Pig Iron Division of National Steel Corporation
BUFFALO • DETROIT • NEW YORK • PHILADELPHIA • BOSTON